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This study guide was developed for use by male and female vocational agriculture cooperative education students, 16 to 20 years old, preparing to become veterinary assistants. It was designed by subject-matter specialists on the basis of state advisory committee recommendations and refined after being tested in operational programs. Units, to be covered in 175 periods of 50 minutes, include: (1) Introduction, (2) Office Management, (3) Kennel and Cage Management, (4) Assisting with Examinations and Treatments, (5) Man and Animal Health, (6) Principles of Disease Control, (7) Methods of Disease Control, (8) Sterilization and Disinfection Procedures, (9) Restraining Animals, (10) Professional Assistance, (11) Laboratory Aids, (12) Clinical Signs of Common Diseases, (13) Animal Nutrition, (14) Miscellaneous, and (15) Research Problems. Each unit includes information sheets and assignment sheets. Assignment answer sheets, topic tests, and test answer sheets are included in the teacher's copy. Textbooks, bulletins, and commercial data are recommended as supplements. The document is looseleaf. (JM)

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931: VETERINARY ASSISTANT

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TO: The ERIC Clearinghouse on Vocational and Technical Education
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RE: (Author, Title, Publisher, Date) Foy Page, Subject Matter Specialist, Teaching Materials Center, College Station, Texas: State Advisory Committee: other qualified individuals Title: Veterinary Assistant

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ACKNOWLEDGEMENT

State Advisory Committee For The
Occupation Of
Veterinary Assistant

Sincere appreciation is expressed for the time, interest, and help given in planning and reviewing this course of study by the members of the State Advisory Committee. Pictured left to right are Billy Trimmier, D.V.M., San Antonio; Fred K. Soifer, D.V.M., Houston; William Hill, D.V.M., Houston; Curtis Thaxton, D.V.M., Tomball; Charles Huff, Executive Secretary, Texas Veterinary Medical Association, Austin; George H. Hurt, State Director, Agricultural Education, Austin; W.C. Banks, D.V.M. College of Veterinary Medicine, College Station; John Holcomb, Director, Teaching Materials Center, College Station; and Bill Tomlinson, Consultant, Texas Education Agency, Austin. Not present for the picture, Horace Barron, D.V.M., Taylor.

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Foy Page
Subject Matter Specialist
Teaching Materials Center

TO THE STUDENT

DESCRIPTION AND NATURE OF WORK - A veterinarian's assistant works with testing programs, inspection of livestock and premises, and routine visits to farms. He may assist in the operation of a small animal hospital.

An assistant aids a veterinarian in inspecting auction barns, meat processing plants, and slaughter houses. He holds and handles animals during injections, treatments and operations. He cleans kennels, sinks, tables, and instruments. As an assistant acquires experience, he may have office duties, such as answering the phone, making appointments, and keeping records. When a veterinarian is making calls at farms, he often has his assistant drive his car.

WORKING CONDITIONS - The duties of a veterinarian's assistant are performed under a variety of conditions. Most of his work is indoors but some jobs are done outdoors, and travel is necessary in all kinds of weather. In general, his work is done in desirable surroundings, but some of it may have to be accomplished in unsanitary, dirty areas. An assistant is exposed to the odors and sights associated with the care of sick animals. His work is steady throughout the year, but his hours may be irregular because a veterinarian is on call at all times.

EDUCATION AND PERSONAL QUALIFICATIONS - You will find a high school education necessary in this kind of work with emphasis on science, physiology, health, and agriculture.

Specific knowledge of farm animals learned in vocational agriculture also will be a great asset. In addition to school work, you should have a livestock farm background or farm work experience. This type of experience is necessary, if you are to assist in the treatment of sick animals intelligently. Skill in handling and restraining large animals often is required of a veterinarian's assistant. Specific skills of this kind may be acquired while on the job, but beginners with experience have a distinct advantage.

A veterinarian's assistant must like working with animals and must be able to work easily with other persons. Good health and physical strength are assets, but some physical handicaps will not interfere with your progress in this type of work. If your work deals with regulatory programs, you must be able to explain them in a tactful way, and have the ability to stand firm in the face of opposition.

HOW TO ENTER AND ADVANCE - A young man with a good high school education and some farm experience or previous background of work with livestock can enter this occupation. The opportunities for advancement are largely by way of being given more responsibility as his knowledge of the work increases. Veterinarian assistants, with some experience, often have quite responsible and well-paying positions at kennels, stables, race tracks, and small animal hospitals.

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Introduction

TOPIC: The Profession of Veterinary Medicine

OBJECTIVE: To become acquainted with the training a veterinarian receives and the opportunities in the field.

REFERENCES: Required:

Information Sheet, "The Profession of Veterinary Medicine"

QUESTIONS or ACTIVITIES:

1. A high school graduate should plan to spend how many years in earning a degree of Doctor of Veterinary Medicine?
2. How many institutions in the U.S. offer a D.V.M. degree?
3. Is the D.V.M. degree the only requirement for practicing veterinary medicine?
4. What types of private practices are common?
5. List five other fields with positions for veterinarians.

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Information Sheet
on
THE PROFESSION OF VETERINARY MEDICINE

A person wishing to become a veterinarian will usually complete a minimum of two years of training in college before starting specialized study in a college or university offering the degree of Doctor of Veterinary Medicine (D.V.M.).

At least three to five additional years are normally spent by the student of veterinary medicine in studying chemistry, physiology, anatomy, genetics, feeding and breeding animals, surgery, and many other courses.

After earning a D.V.M. degree at one of the eighteen colleges and universities in the U.S. that offer the degree, the graduate must meet state licensing requirements before starting to practice his profession.

Several fields are open to the veterinary graduate after he is licensed. Many start private practices which may be a general practice or may be limited to either small animal or large animal practice. Others may wish to specialize in one animal such as horses.

Other fields include public health services of cities, states, federal government, or the armed forces. These would include health protection of the public by inspecting meat and meat products, milk and other dairy products, vaccine and serum production, and other biologicals and drugs. Veterinarian services are also used in studying and treating wildlife in governmental agencies, circuses and zoos. Many veterinarians are involved in research and development for the USDA, commercial laboratories and colleges and universities, as well as being members of the teaching staff in the colleges and universities.

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Assignment Sheet
for
THE VETERINARIAN ASSISTANT

UNIT: Introduction

TOPIC: The Veterinarian Assistant

OBJECTIVE: To become familar with the reasons a veterinarian needs an assistant the duties and the benefits the position offers.

REFERENCES: Required:

Information Sheet, "The Veterinarian Assistant"

QUESTIONS or ACTIVITIES:

1. How may a veterinarian profitably spend his time between calls or appointments?
2. The duties of the veterinarian assistant might be divided into what two groups?
3. The two main types of non-professional duties are what?
4. Why is proper care and close observation of kennel and cage patients very important?
5. List ten desirable traits for a veterinarian assistant.
6. Read and study the page entitled "To the Student" that preceded Unit I.

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Information Sheet
for
THE VETERINARIAN ASSISTANT

A veterinarian's professional duties occupy too much of his time for him to handle routine and non-professional duties that are essential in a private practice. Even though the veterinarian has extra time between calls and appointments, he may utilize the time by reading veterinary journals, farm publications and taking care of other matters of importance not directly related to his practice. Many of the routine and non-professional duties can be satisfactorily done by a competent assistant. In addition, the veterinarian will need an assistant to aid with many of his professional duties.

Office duties of the assistant will include making appointments, meeting and introducing visitors, reminding the veterinarian of meetings and other important dates, answering telephone and screening calls, keeping all patient and office records, operating office equipment, and keeping office supplies in order. The assistant may also be asked to make coffee, send out notices or make calls to pet owners, clean office, reception, and examination rooms. Walls, windows, woodwork and driveways need regular cleaning and maintenance.

A very important duty will be the routine kennel and cage chores. These will include keeping food inventory, feeding, watering, exercising, and keeping accurate records on all patients. Close observation, temperature checks, fecal and urine samples can be very important for the patient's welfare and the relationship of the patient's owner and the veterinarian. Proper cleaning and sanitation will be expected in the kennels and cages.

The duties of the assistant will certainly extend to the examination room and surgery room to aid the doctor with examinations and operations. Preparing medications, restraining animals, using x-ray equipment, sterilizing instruments and materials, and doing simple laboratory work are a few jobs that might be expected.

On out of the office calls, the assistant not only can help with the actual treatment of animals, but can do the driving to permit the veterinarian to relax and rest between calls.

The job of a veterinarian assistant is not an easy one, but it offers many benefits. The training and actual experience will be of help to the assistant, especially if he plans to become a veterinarian. The experience will help the assistant decide if he wants to follow this vocation. The wide variety of duties should make the job an interesting, challenging, and pleasant experience.

The Veterinarian Assistant
(Information Sheet continued)

To perform all of his duties well, a veterinarian assistant should possess the following traits:

1. Calm, careful, and deliberate
2. Ability to think and reason
3. Good judgment
4. Tactful or diplomatic yet truthful
5. Self-confidence
6. Honesty
7. Open-minded
8. Optimistic
9. Promptness
10. Happy with hard work and long hours

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Introduction

TOPIC: Safety On The Job

OBJECTIVE: To become aware of the need for safety precautions in performing the duties of veterinarian assistant.

REFERENCES: Required:

Information Sheet, "Safety On The Job"

QUESTIONS or ACTIVITIES:

1. Name the seven groups of dangers for which safety precautions should be observed and practiced.
2. Dangers from physical group would include what?
3. How should chemicals be mixed and used?
4. The spread of diseases may be made easier because of what?
5. Pesticides and various chemicals are dangerous in what ways?
6. List two precautions to observe in the laboratory.

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Information Sheet
on
SAFETY ON THE JOB

As was discussed in the previous topic, the duties of a veterinarian assistant are many and varied. In order to perform these duties with safety for the patients, their owners, the veterinarian and himself, the assistant must always be alert and conscious of the dangers involved with each duty and use the precautions that are needed.

The dangers involved in the job might be divided into these general groups:

a. Physical
b. Chemical
c. Diseases and Infections
d. Toxicity
e. Drugs
f. Residues
g. Laboratory

Physical:

In handling and restraining dogs, cats, and other small pets, care should be taken to prevent the animal from biting or scratching the assistant, the doctor, or the patient's owner. Injury to the animal should be avoided. Large animals must be handled and restrained with care to prevent injury to the animal or anyone present during examination and treatment.

Avoid being stepped on or kicked by keeping your distance or by leaving yourself room to step back out of the way. In kicking, most animals can reach farther to the rear, not so far to the front, and very little to the sides.

Precautions must be observed in using or repairing equipment or facilities. Power equipment can damage the animal or operator by physical force or, in the case of electrical power tools, by electric shock. All electrical power tools should be safety grounded. Sprayers, mowers, and other equipment with gasoline engines should deserve the normal safety precautions while being re-fueled, used, or repaired to prevent burns and lacerations.

Safety On The Job
(Information Sheet continued)

Chemical:

Many chemicals can be dangerous to man and animals if not mixed and used according to the directions and precautions of the manufacturer. Care should be taken in mixing, preparing, or using chemicals in treating animals, disinfecting, spraying animals, facilities, or plants.

Diseases and Infections:

Precautions should be observed to prevent contracting diseases or infections from patients and to prevent the spread of diseases because of improper cleaning, disinfection, or sterilization. Be particular about body cleanliness and always wash your hands before eating or placing anything in your mouth.

Toxicity:

Individual people and animals will react differently to various chemicals, drugs, biologicals, vaccines, etc. It is particularly important to use caution in mixing and using these compounds so that the proper dosage is achieved, lessening the danger of toxicity.

Drugs:

Labeling, mixing, and storing all drugs, vaccines, and biological compounds properly is necessary to prevent serious damage to patients.

Residues:

Residual effects of some pesticides in animals, animal products, and dairy products should be understood. Owners of animals should be warned of such dangers, and the time limits on the use of the products from treated animals should be explained.

Laboratory:

Care, safety precautions, and accuracy in performing laboratory examinations and tests will lessen the occurrence of a wrong diagnosis by the veterinarian and lessen the danger of improper treatment. Proper use and development of x-rays will eliminate dangers to the patient and operator, and will allow the veterinarian to make a more accurate diagnosis.

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Office Management

TOPIC: Routine Office Work

OBJECTIVE: To become familiar with routine office duties and develop an understanding of their importance.

REFERENCE: Required:

Information Sheet, "Routine Office Work"

QUESTIONS or ACTIVITIES:

1. Why is it important for the assistant to present a good image to the public?
2. Why should the assistant learn the purpose of the visit of a client?
3. List six points in keeping a pleasant atmosphere in the reception room.
4. What are two points in handling animals in the reception room?
5. List ten other duties in the office.
6. Study, use, and become familiar with the operation of office equipment.

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Information Sheet
on
ROUTINE OFFICE WORK

The veterinarian assistant is expected to perform many simple, but important office duties that will enable the veterinarian to spend more of his time on professional duties. While performing the office duties, the assistant should be ever mindful that his contact with the public will reflect the relationship of the veterinarian and the public.

Reception duties will include meeting visitors, determining the purpose of the call, and making them comfortable until the veterinarian can see them. On a first visit, this initial reception may determine the feeling of the visitor toward the veterinarian. A brief summary of the purpose of the call will be helpful to the doctor before he is introduced to the visitor. The assistant should strive to keep a pleasant atmosphere in the reception room. Points to help achieve this are:

a. A clean,comfortable, well organized room.

b. Visitors and patients made to feel comfortable and not detained too long,

c. Fairness exhibited in appointments and callers without appointments.

d. Arrangements to insure harmony between two or more visitors and their animals.

e. Make future appointments convenient for the client and the veterinarian.

f. In handling, transferring, and restraining animals, care should be taken not to offend the client or injure the patient.

Office duties may include helping to keep the business records and will certainly include keeping records of all patients and their treatment. Notices to mail or calls to pet owners to remind them of animal treatment or vaccinations may be another duty in the office. Keeping office supplies in order with an inventory and what is needed will be helpful. The operation of any office equipment the veterinarian uses should be mastered.

Routine Office Work
(Information Sheet continued)

Other duties in the office not to be overlooked include:

a. Making coffee or preparing other refreshments

b. Reminding the doctor of meetings and important dates

c. Answering the telephone and screening calls

d. Operating two-way radio

e. Delivery and pick-up of mail and laundry

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Assignment Sheet
for
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UNIT: Office Management

TOPIC: Telephone Courtesy

OBJECTIVE: To learn and understand points in properly using the telephone and in common telephone courtesy.

REFERENCE: Required:

Information Sheet, "Telephone Courtesy"

QUESTIONS or ACTIVITIES:

1. Why should the assistant carefully screen telephone calls?
2. List the seven qualities desirable for telephone communication.
3. Why should the voice of the assistant indicate calmness?
4. Why should a pad and pen be kept near the telephone?
5. Why should the caller's name be repeated during the conversation?
6. Why should files, records and other information be kept near the telephone?

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Information Sheet
on
TELEPHONE COURTESY

Answering the telephone and screening calls was mentioned as one duty in the veterinarian's office. It is a duty that is important enough that the assistant should spend some time in studying and developing the proper habits and courtesy in using the telephone. Even though the telephone is a common instrument in the home, its use in the office requires different answering techniques and procedures.

Much time can be saved for the veterinarian if all telephone calls are properly screened. The screening of calls requires good judgment and much tact on the part of the assistant. If the call is important enough for the doctor to take, the caller should not be required to wait any longer than necessary. If the call is important and the veterinarian is out or busy, the message should be taken in writing including the number for returning the call, if a return call is necessary.

Following are qualities in the voice that are important in telephone communication:

a. Alertness - This gives the impression that you are interested in the needs of the person making the call and eager to help in any way you can.

b. Expression - The person calling needs to be made to feel a complete confidence in the veterinarian and his office. Even though this confidence may be gained later by personal contact, it is important to relay expression by a firm, pleasant voice rather than a dull monotone.

c. Naturalness - It is well to be yourself and use a vocabulary and a tone of voice which expresses your own, best, natural self.

d. Pleasantness - Relay your part of the conversation in a pleasant, optimistic manner.

e. Distinctness - This is accomplished with clear and precise pronunciation of your words. People do not like to strain to hear what is being said and hesitate to request that words be repeated. To help accomplish this, the lips should be about one-half inch from the telephone mouthpiece to form each word easily. You cannot speak distinctly with gum, candy, or a pencil in your mouth.

Telephone Courtesy
(Information Sheet continued)

f. Modulation - A loud voice sounds unpleasant and it is equally irritating to try to understand a whisper. An attempt should be made to maintain a moderate volume.

g. Calmness - Even though the caller might be nervous or upset, it is important to remain calm during the conversation. This will tend to have a calming effect on the caller. All facts concerning the call should be obtained before breaking the connection.

One should be aware of these qualities and practice them constantly to convey a business-like attitude and the good impression that is important in a veterinarian's practice.

The telephone should be answered promptly, by the second ring if possible.

A pad of paper and a pen should always be near the telephone. The name of the person and other pertinent information can be quickly taken down and used during and after the telephone conversation.

Using the person's name can be quite effective after a break in the conversation. This leaves a good impression on the caller and helps you remember the name. If you leave the phone to obtain information, a good method to re-open the conversation is to state the person's name. This helps to show him you have an interest in his call.

Making the client wait for a long period of time while hunting for information can be disturbing to the client. Have files, records, appointment book, and other important information at hand and ready to use at all times.

After terminating the conversation, the client should be allowed to hang up first. This eliminates the chance of a loud click in his ear as the receiver is replaced and is an indication of a courteous, thoughtful person.

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Assignment Sheet
for
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UNIT: Office Management

TOPIC: Two-Way Radio Operation

OBJECTIVE: To become acquainted with the operation and maintenance procedures of two-way radio units.

REFERENCES: Required:

Information Sheet, "Two-Way Radio Operation"

QUESTIONS or ACTIVITIES:

1. A two-way radio system for the veterinary practice consists of what?
2. Each transmission should be preceded by what?
3. What is the purpose of the squelch control and how is is it set?
4. Why should the operator monitor a channel before transmitting?
5. A maintenance program should be set up with what three considerations?
6. What vehicle equipment needs to be checked periodically?
7. List maintenance tips and points to check regularly.

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Information Sheet
on
TWO-WAY RADIO OPERATION

A two-way radio communication system can be an important key in coordinating a veterinary practice. Most systems will be of the Citizen-Band type but will have sufficient range to be very effective in most areas. A system will usually consist of a base unit and at least one mobile unit.

In practices with more than one veterinarian, the radio system is particularly useful to keep up with each man's location and to transmit instructions for calls that must be made.

Routine calls are scheduled a day or more in advance to enable the doctor to plan his route and make several calls during one trip. After each call is completed the doctor can report back to the office by radio to receive any messages, emergencies, or additional appointments.

If a client calls the office with a question about a treatment the doctor has prescribed, the veterinarian can be contacted by radio and the information can then be related to the client.

While on routine work calls, the veterinarian can be contacted to take care of an emergency call. Also, while out of the office, the doctor may wish to change earlier instructions or give additional instruction.

To obtain full value from the radio system, all persons using it must do so properly. Both the mobile operator and the dispatcher should have complete basic knowledge of the radio system and the functions of its various controls and general microphone techniques.

With his permit from the F.C.C. to operate the C-B radio, the veterinarian will receive his call number and channel number. Each transmission should be preceded by the call number.

The squelch control on a unit is sometimes misunderstood. Since FM mobile radio does not provide a continuous carrier wave, the constant noise level of interference is present when no one is transmitting. Squelch control filters out the noise to quiet the receiver when there is no signal present. The squelch control knob must be advanced clockwise to the point where the noise just disappears. The receiver will then be at its optimum operational setting to all signals within range.

Two-Way Radio Operation
(Information Sheet continued)

It is important to use correct verbal procedures. Monitor the channel before transmitting to avoid cutting out another message. Allow a second or two after depressing the microphone switch before starting the message. This time could best be used to plan what will be said in a clear and concise form. Transmit slowly and distinctly. If a word or phrase is used that is particularly important or might be hard to understand, repeat it or spell it out to make sure it is received correctly. If the entire message is being written down, pace yourself by mentally or actually writing it, too. The few seconds this adds to the first transmission saves minutes of repitition later.

The operator should use a moderate volume, normal tone of voice at all times. Shouting into a microphone creates a choppy and distorted message that is difficult to decipher. The competition of background noise tends to stifle a soft, quiet voice.

Periodic maintenance is vitally important in a two-way radio system. The maintenance should be set up with three considerations:

a. Federal Communication Commission requirements

b. Emergency servicing

c. Preventive maintenance

At least once per year, the F.C.C. requires the licensee to have each transmitter checked for frequency deviation, modulation, and power input. Such checks must be made by a licensed technician holding a F.C.C. Second Class Radio-Telephone license.

A two-way radio is a precision electronic instrument composed of hundreds of tiny parts, designed and manufactured to work in unison to provide optimum performance which is subject to field conditions, weather, constant use and rugged treatment, and degradation of certain components. This reduces performance levels not only of one unit, but the entire system.

The best method of preventive maintenance to keep the little things from accumulating is to have the work done by a local electronics service firm. Veterinarians utilizing this method work through a manufacturer or directly with the local technician.

Certain radio manufacturers offer a comprehensive maintenance agreement which covers the required F.C.C. checks and a complete preventive maintenance program including necessary parts and optional 24 hour emergency service.

In addition to keeping radio equipment in top shape, a properly operating electrical system is also necessary for optimum performance. Batteries, generators or alternators, and voltage regulators should be checked periodically.

Two-Way Radio Operation
(Information Sheet continued)

Combining a solid maintenance program with continuing proper usage enables a veterinarian to [illegible] rely on radio as a dependable communications tool that not only makes him more readily available to his clients, but also results in a multitude of time and money saving benefits that repay the initial investment many times over.

Radio Maintenance Tips

1. Check all connectors to be sure they are tight, free of corrosion, and securely locked into position. Connectors include the antenna and all power lines going into the unit.
2. Mounting screws securing the base plate of the unit to the vehicle should be tight.
3. Battery power cable insulation should not be cracked or frayed and terminals, battery, and grounding points should be clean and making good electrical contact.
4. Dust on the equipment can cause problems. The unit should be removed from its case occassionally and accumulated dust blown out with an air hose.
5. It is a good idea to have the generator or alternator output checked to be certain it is adequate. Extremes in high or low voltage can be detrimental to the performance and life of the unit.

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT:	Kennel and Cage Management
TOPIC:	Caring for Patients
OBJECTIVE:	To become acquainted with the procedures and practices in caring for patients.
REFERENCES:	Required: Information Sheet, "Caring for Patients"

QUESTIONS or ACTIVITIES:

1. Name procedures and practices in feeding patients.
2. Feeding containers for small animals might be of what types?
3. When should animals be exercised?
4. What precautions should be observed in bathing and trimming animals?
5. List other points to help insure proper treatment and improvement of animals?
6. What is needed to determine when a bandage or dressing needs replacing?
7. List five points to help determine the time to replace a bandage.

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Information Sheet
on
CARING FOR PATIENTS

The routine work of caring for animals confined in kennels, cages, and stalls at the veterinary clinic is an important duty of the veterinarian assistant. Many of the chores are simple, yet if not done properly and promptly with regularity, might have harmful effects on the patients.

Regular feeding of all patients with the proper kind and amount of feed is necessary. Records should be kept showing the kind and amount of food and the appetite and bowel movement of each patient. Any unusual occurrence in the eating habits or any visible change in the animal's condition should be reported to the doctor. An inventory of food supplies should be made each week to insure an adequate supply. The type of feeding containers will depend on the veterinarian. For small animals, many types of dishes are available. They include the heavy duty reusuable containers, light weight, disposable aluminum dishes, and light weight disposable paper dishes. Each animal should have a supply of fresh water at all times.

Exercise of patients as prescribed by the veterinarian will be important to the improvement of the animal's condition.

Some of the animals will need to be bathed regularly and this should be done in such a manner as to not excite or injure the patient. Animals in dryers should be checked frequently and then carefully combed and groomed, particularly if the animal is to be released from the clinic.

Trimming and grooming may be done with hand tools or power tools. Care should be taken not to frighten the animal with the noise of a power tool such as an electric clipper.

Close observation of all animals, taking temperatures, pulse and breathing rates, collecting fecal and urine samples, and keeping accurate records of individual animals and their condition will help to insure proper treatment and improvement of animals.

Animals going home should be examined closely and released to the client with an explanation of recommendations in caring for and further treatment, improvement expected, and possible symptoms to watch for that might indicate trouble.

Caring for Patients
(Information Sheet continued)

Dressings for wounds and bandages will need to be changed as needed. Close observation and good judgment will be needed by the assistant to determine when a dressing or bandage needs to be replaced. The veterinarian should be consulted if in doubt as to the condition or progress of the patient,

Points to aid in determining if a dressing or bandage needs to be changed are:

a. If staurated with pus and wound secretions
b. If it is covered with dirt or filth
c. If there is evidence of pain or pronounced swelling in the region of the bandage
d. When fever persists
e. When bandage was improperly applied

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Kennel and Cage Management

TOPIC: Cleaning and Disinfecting

OBJECTIVE: To become aware of the importance of and the methods of cleaning and disinfecting kennels, cages, stalls, and equipment

REFERENCES: Required:

1. Information Sheet, "Cleaning and Disinfecting"
2. "The Stockman's Handbook" by Ensminger, pp. 553-556

Supplemental

3. Animal Diseases, 1956 Yearbook of Agriculture, pp. 98-102

QUESTIONS or ACTIVITIES:

1. The method of cleaning cages and equipment will depend on what?
2. How often should cleaning and disinfecting be done?
3. Disinfectants are effective only after what?
4. List eight characteristics of a good disinfectant.
5. Define a disinfectant.
6. What is the difference in a disinfectant and an antiseptic?
7. Effective disinfection depends on what four things?
8. Some disinfecting action may be accomplished by what other means than chemical disinfectants?
9. What chemical disinfectant is considered to be most practical and most broadly effective?
10. Study the usefulness, limitations and comments of the common disinfectants.

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Information Sheet
on
CLEANING AND DISINFECTING

The cleaning of clinic kennels, cages, stalls, and equipment may be done in various ways depending on the types of cages and equipment being used and the water supply available. The inside cages may be cleaned with an alkaline detergent, sponged with a disinfectant, then dried completely with a vacuum cleaner, fan or other means. The outside kennels and stalls should be be cleaned of foreign material (soil, manure, straw, etc.), washed and mopped, and sprayed thoroughly with a good disinfectant.

All kennels, cages, stalls, feeding containers, and other equipment should be cleaned and disinfected once daily.

Disinfection is possible only after thorough cleaning. Disinfectants must touch the organism, so if the organism is embedded in organic soil, no contact is made and no disinfection results. Disinfectants spread over unclean surfaces kill only the organisms on the surface.

Some characteristics of an ideal disinfectant are:

a. Germicidal power - it should kill bacteria in a diluted solution and is usually compared to phenol. They are somtimes sold on their phenol co-efficient.
b. Stability - stable in the presence of organic materials.
c. Solubility - readily soluble in all proportions in water.
d. Non-toxic to Higher Animals - man and animals.
e. Noncorrosive - desirable if the chemical does not corrode equipment, stain or bleach colors.
f. Penetration - penetrates deeply, readily, and efficiently.
g. Economy - based on killing power and suitability for particular usage.
h. Deodorizing power - to eliminate or prevent an offensive odor.

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Kennel and Cage Management

TOPIC: Temperature, Pulse Rates, and Breathing Rates

OBJECTIVE: To learn procedure of checking temperature, pulse rates, and breathing rates and to learn normal ranges of each.

REFERENCES: Required:

1. Information Sheet, "Temperature, Pulse Rates, and Breathing Rates"
2. "The Stockman's Handbook", Ensminger, pp. 552 and 553

QUESTIONS or ACTIVITIES:

1. What is often the first easily detected sign of an infection or disease?
2. How may temperature be taken in domestic animals?
3. The thermometer should remain in position how long?
4. What affects the temperature of animals other than infectious diseases?
5. List the body areas for taking the pulse rate of the different animals.
6. What type of animals will have higher pulse rates?
7. How can the breathing rate of animals be determined?
8. List the normal temperature, pulse rate, and breathing rate of farm animals.

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Information Sheet
on
TEMPERATURE, PULSE RATE, AND BREATHING RATE

Taking the temperature of an animal is of great value in determining the health and condition of the animal. It is useful, both in diagnosing a disease and in observing its course.

Fever is often the first easily detected sign of an infection or disease. By taking daily temperatures, preferably in the evening, infected animals can be detected before an outbreak occurs. With important diseases and especially valuable animals, temperatures are often taken twice daily.

The instrument used for taking body temperatures is known as the maximum thermometer. When its bulb is warmed, the mercury rises in the column and remains at its highest point after the warmth is no longer present. This makes the thermometer easier to read. Because the mercury stays in the column, it must be forced down into the bulb before insertion, usually by shaking in a downward motion. A "cattle" thermometer is usually five inches long and the one for smaller animals is four inches long.

The temperature of domestic animals is usually taken by inserting the thermometer into the rectum. In special cases, it may be inserted into the vagina. With fowls, the instrument is either inserted into the rectum or held under the wing.

After the instrument is "shaken down", it should be lubricated with some harmless grease or oil before inserting it into the rectum. It should be inserted its full length, bulb first, and allowed to remain in position for at least three minutes.

Large animals should be restrained and care should be taken not to break the thermometer or injure the animal. The thermometer should always be cleaned and disinfected after each use.

The normal body temperature of animals varies much more than that of people, as can be seen in the reference, "The Stockman's Handbook", Ensminger, page 553.

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Assignment Sheet
for
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UNIT: Kennel and Cage Management

TOPIC: Bedding for Animals

OBJECTIVE: To become familiar with the reasons for animal bedding and characteristics of some bedding materials.

REFERENCE: Required;

"The Stockman's Handbook," Ensminger, pages 318-320

QUESTIONS or ACTIVITIES:

1. What are primary purposes of bedding?
2. List three other values of bedding?
3. The kind of bedding used is influenced by what eight things?
4. Study the water absorption of different bedding materials.
5. How much bedding should be used?
6. When may the minimum quantities be insufficient?
7. Why are bedding materials becoming more scarce and higher in price?

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Assignment Sheet
for
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UNIT: Assisting with Examinations and Treatments

TOPIC: Determining Age of Animals

OBJECTIVE: To learn how to determine the age of animals in order to aid the veterinarian in diagnosis, treatment, testing, and classification of animals.

REFERENCE: Required:

Stockman's Handbook, Ensminger, pp. 607-616

QUESTIONS or ACTIVITIES:

1. The age of most animals can be determined by what method?
2. How can temporary or baby teeth be distinguished from permanent teeth?
3. Give the number and name the teeth of mature cattle, sheep, and goats.
4. Study and give a description of teeth of cattle from one month to twelve years of age.
5. Study and give a description of teeth of sheep and goats from three months to five years of age.
6. Give the number and name the teeth of mature swine.
7. Study and give a description of teeth of swine from birth to two years of age.
8. List the number and kind of teeth in both sexes of young and mature horses.
9. Describe the shape and slant of permanent incisor teeth of horses.
10. What is the most reliable indication of age from five to twelve years?

UNIT: Assisting with Examinations and Treatments
TOPIC: Determining Age of Animals
(Assignment Sheet continued)

11. What may materially affect the wear of teeth?

12. Study and list description of the teeth of horses from ten days to twelve years of age.

13. Study the horse's tooth and its parts.

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Assignment Sheet
for
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UNIT: Assisting with Examinations and Treatments

TOPIC: Handling Animals and Common Terms

OBJECTIVE: To determine steps in preparing and handling animals for injection and to become familiar with common terms.

REFERENCE: Required:

Information Sheet

QUESTIONS or ACTIVITIES:

1. Describe how to hold a small animal for a simple, fast injection.
2. An ideal method to restrain large animals for injections is what?
3. How can nose tongs be used effectively?
4. After an injection, the animal's cage, kennel, or stall should be tagged with what information?
5. After injection, what does the frequency of observation depend on?
6. Define subcutaneous and intravenous.
7. Name the parts of a syringe.

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Information Sheet
on
HANDLING ANIMALS AND COMMON TERMS

Handling and preparing animals for injections requires knowledge and skill to insure proper treatment and to prevent injury to the animal, the veterinarian and the assistant. Detailed information on restraining small and large animals wil be discussed in later topics to enable the veterinarian to effect major treatment or perform surgery.

In restraining small animals for injections, most pets such as dogs and cats can be held so that the animal will be still and not be able to inflict injury. The handler should stand at the back of the animal and hold the animal's head for a simple, fast injection. If necessary, the legs may be taped or a muzzle may be used.

When working with large animals, a chute and head stanchion are ideal for restraining the animal. After the animal is secured, a halter, rope, or cattle leader (nose tongs) can be used to pull the animal's head to the side of the head gate, chute, or post in such a manner as to form a bow in the neck. This will minimize movement and in the case of intravenous injections, will expose the jugular vein and make it easilyaccessible. A tight rope or halter around the throat or upper neck which might impede blood flow should be avoided.

After an injection is made, the animal should be identified in some manner. If the animal is a clinic patient, the cage, kennel, or stall should be tagged with information concerning kind, quantity, and route of injection. Depending on the animal's condition and the type of injection, frequent observation may be required.

The veterinarian assistant should be familiar with the terminology in relation to injections in order to be more efficient in aiding the veterinarian. Some common terms, their abbreviations and meanings are listed below:

1. Paraexteral methods of injections - Any method other than in the intestinal tract.
2. Cutaneous - The material is applied to the skin or rubbed into the skin.
3. Intracutaneous or Intradermal (ID) - Injected into the skin.

4. Subcutaneous (Sub. Q.) - Injected just under the skin.
5. Intravenous - Injected into a vein when fast action is wanted. The vein used depends on the type of animal. The jugular vein is usually used with horses, cattle, and sheep.
6. Intramuscular (IM) - Injection is made into large muscles. Muscles in the neck and thigh are commonly used.
7. Intracardial (IC) - Injected directly into the heart.
8. Intrathoracis (IT) - Injected into the thorax. Not commonly used.
9. Intraocular (IO) - Under the eyelid, into the cornea, or into the anterior chamber.
10. Epidural (Intraspinal) - Directly into the spinal canal.
11. Intrapulmonary (IP) Injected into a lung.
12. Inhalation - Vapor or dust is inhaled.
13. Oral - By mouth or injected through a stomach tube.
14. Rectal (Enema) - Injected into the rectum.
15. Intramammary - Injected into mammary gland.
16. Syringe - Instrument used to make injections, consisting of plunger, barrel, and various types and sizes of needles.
17. Stomach tube - Tube to pass materials directly into stomach. May be inserted through mouth or nostril.

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Assignment Sheet
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VETERINARIAN ASSISTANT

UNIT: Assisting with Examinations and Treatments

TOPIC: Injection Procedures

OBJECTIVE: To become familiar with injection procedures and common terms as used by veterinarians.

REFERENCE: Required:

Information Sheet, "Injection Procedures"

QUESTIONS or ACTIVITIES:

1. The method of injection used depends on what?
2. How are most injection materials measured?
3. Materials to be injected should be at what temperature?
4. What are two simple, effective field methods of sterilizing syringes and needles?
5. List steps and precautions in filling a syringe.
6. What method of filling syringe can be used when making more than one injection?
7. Who should direct or supervise any injection?
8. What may cause biological products to lose their strength?

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Information Sheet
on
INJECTION PROCEDURES

As was pointed out in the previous topic, injections are made in many different ways. The method used depends on the kind and amount of solution used, the purpose of the injection, and the animal involved. Most injection materials will be measured in cubic centimeters, usually written or called "c.c.".

The temperature of materials to be injected and the syringes and needles should be near body temperature, but never higher. Some injections such as serums may be given at body temperature or at cold temperatures.

In making injections, it is extremely important that no unwanted micro-organisms are forced into the animal's body. The injection area should be clipped and/or shaved if covered with hair, cleaned, and an antiseptic should be applied. Needles that are sharp and the proper size and the syringe should be clean and sterilized. Laboratory sterilization will be covered in detail in another unit, but two simple methods are practical and effective for field use. Placing in boiling water for ten minutes or filling them with ethyl alcohol are usually considered effective and adequate. If alcohol is used, a 70% solution is good and all of it should be forced out of the syringe by depressing plunger several times. If injections are made in several animals, the instrument should be cleaned and sterilized between injections.

In filling a syringe, certain steps and precautions should be followed. The instructions on the bottle containing the solution should be read carefully. Instructions on most solutions will include shaking the bottle before using. Fill the syringe barrel with air by pulling the plunger out, then push the needle through the disinfected stopper. Invert the bottle and force the air from the syringe by depressing the plunger. Pull out plunger slowly until barrel is filled to desired level. Remove from bottle and, while holding syringe with needle up, force any air bubbles from the barrel. Another method, when making more than one injection, is to leave the needle in the stopper of the bottle and attaching another sterile needle before each injection.

Injections should be made only as directed by and under the supervision of the veterinarian.

All biological products should be protected from heat and sunlight. They may lose their strength because of this exposure or because of age.

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Assisting with Examinations and Treatments

TOPIC: Applying Bandages

OBJECTIVE: To learn importance of and procedure in applying bandages properly.

REFERENCE: Required:

Information Sheet, "Applying Bandages"

QUESTIONS or ACTIVITIES:

1. What is usually required to hold a bandage securely in place?
2. List five precautions in applying bandages.
3. How can bleeding be controlled?
4. Why should tape be applied above and below the dressing?
5. How can the blood flow from an artery and a vein be distinguished?
6. When should a tourniquet be applied?

Information Sheet
on
APPLYING BANDAGES

In addition to the routine duty of changing dressings and bandages on patients confined at the clinic, the assistant will need this knowledge and skill in aiding the veterinarian after treatment or surgery.

Types of dressings, bandage gauze, and tapes will vary with the individual veterinarian's preferences. On most bandages, some type of tape will be needed to secure the prepared dressing or the gauze from a roll. Material of any length should be in a tight roll to enable easier application. Most veterinarians will use commercially prepared dressings, gauze, cotton, and tape.

Methods of securing the bandage in place will vary with the animal and the location of the area to be protected. In addition, the bandage may need to be protected so that the animal cannot remove it.

Bandages should be changed according to the information presented in a preceding topic.

Precautions in applying bandages include:

1. Never apply too tightly unless a pressure bandage is desired.
2. Apply tape to secure bandage and to help prevent the removal of the bandage by the animal.
3. To control bleeding, use a pressure bandage instead of a tourniquet if possible.
4. If a tourniquet is used, it must be loosened for a few minutes every hour. A complete lack of blood flow may cause gangrene in the area.
5. Only materials that are sterile should be used.

To apply a bandage on the leg or foot of an animal, the gauze may be wrapped around the leg, holding the roll or material and unrolling it as it is applied. Depending on the contour of the area, the gauze roll may need to be twisted half a turn occasionally to pull in the sides of the material for a snug, neat bandage. To secure, the end of the gauze may be split lengthwise, a knot tied, and each strip wrapped in opposite direction of each other and tied. Tape may be used to secure and protect the gauze more effectively. The tape should be applied above and below the gauze to adhere to the animal to keep the bandage in position. To protect foot and leg bandages from water, mud, and other contamination, various types of protectors are commercially available.

Dressings on body areas may be applied and attached with tape or in some cases, may need to be secured by wrapping around body, neck, or head.

To control minor bleeding, the wound may be packed with sterile gauze or cotton, covered with a bandage and then have pressure applied. Before trying to control serious bleeding, it should be understood that the blood can come from a vein or an artery. Loss from an artery will be indicated by the flow coming in spurts as the heart beats. Blood coming from a vein will flow steadily and will be darker in color. If the artery or vein cannot be located to close with forceps, or by tying it off, finger or hand pressure may be used if applied at the proper location. A tourniquet should only be used as a last resort and with precautions already listed.

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Assisting with Examinations and Treatments

TOPIC: Dehorning, Castrating, and Docking

OBJECTIVE: To learn principles and equipment involved and the methods of dehorning, castrating, and docking animals.

REFERENCE: Required:

Stockman's Handbook, Ensminger, pp. 311-318

QUESTIONS or ACTIVITIES:

1. List the equipment used for dehorning cattle.
2. Name and describe the use of equipment for castrating bulls.
3. List equipment used to dock and castrate lambs.
4. List four steps in castrating pigs.
5. What are the steps in chemical dehorning?
6. The hot-iron system is used on what animals?
7. At what age should docking and castrating lambs be done?
8. What are results of using an emasculator?
9. When should pigs be castrated?
10. Horses are usually castrated when and by whom?

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Assignment Sheet
for
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UNIT: Assisting with Examinations and Treatments

TOPIC: Marking Animals

OBJECTIVE: To become familiar with the importance and methods of marking and identifying animals.

REFERENCE: Required:

The Stockman's Handbook, Ensminger, pp. 307-310

QUESTIONS or ACTIVITIES:

1. What are purposes of marking animals?
2. Name six methods of marking cattle.
3. What are disadvantages of hide brands?
4. When is tattoo branding usually used?
5. Paint brands for sheep should have what features?
6. How are swine normally marked?
7. The Thoroughbred Racing Association requires what identification of race horses?

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Assignment Sheet
for
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UNIT: Assisting with Examinations and Treatments

TOPIC: Preparing Livestock for Shipment

OBJECTIVE: To learn the importance of and the principles involved in handling animals before, during, and after shipment.

REFERENCE: Required:

The Stockman's Handbook, Ensminger, pp. 637-645

QUESTIONS or ACTIVITIES:

1. Improper handling of animals before and during shipment may result in what?
2. When are animal health certificates and permits required?
3. When should vaccination for shipping fever be practiced?
4. How should animals be fed and watered prior to loading?
5. Heavy feeding and watering before shipment results in what?
6. Name ten precautions to reduce marketing losses.
7. Study the space and bedding requirements for shipping livestock.
8. List seven factors affecting shrinkage.
9. What is the average shrinkage for cattle, sheep, and hogs?

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Assisting With Examinations and Treatments

TOPIC: Breeds of Small Animals

OBJECTIVE: To learn the names and to be able to identify common breeds of cats and dogs.

REFERENCES: Required: (Listed in order of preference)

1. The World Book Encyclopedia, Vols. 3 and 4
   or
2. Americana Enclyopedia, Vols., 6 and 9
   or
3. Britannica Encyclopedia, Vols. 5 and 7
   or
4. Colliers Encyclopedia, Vols. 5 and 8

QUESTIONS or ACTIVITIES:

1. What are the two main groups of cats?
2. List the breeds of cats under each group.
3. What breed is the most common?
4. What are the two color types of Siamese cats?
5. List the two common types of Longhair cats?
6. What are the six groups of dogs?
7. Pointers, setters, retrievers, and spaniels are in which group?
8. Which group has the largest number of breeds?
9. The Chihuahua and Pekingese are in which group?
10. Study the illustrations of various breeds of cats and dogs in the references and become familiar with their color and size and be able to recognize the common breeds.

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Man and Animal Health

TOPIC: The Battle Against Diseases

OBJECTIVE: To become acquainted with the problems and some of their solutions in the struggle to guard the health of man and animals.

REFERENCE: Required:

Animal Diseases, 1956 Yearbook of Agriculture, pp. 1-7

QUESTIONS or ACTIVITIES:

1. Many of our common diseases were introduced into the U.S. by what means?
2. What cow was said to be as expensive as Mrs. O'Leary's cow?
3. An organized animal-disease-eradication program was established how?
4. List the serious diseases affecting the livestock industry as early as 1884.
5. What was the first classic example of what animal research could do?
6. The eradication procedure for foot-and-mouth disease consisted of what?
7. What method was used in fighting cholera?
8. The drive against sheep scabies included what?
9. What two things led to the eradication of glanders disease in horses?
10. When did the campaigns against tuberculosis and brucellosis start and list the methods used in each.

UNIT: Man and Animal Health

TOPIC: The Battle Against Diseases

(Assignment Sheet continued)

11. When was the first Federal Meat Inspection Law passed?

12. The goal of all our disease programs is what?

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Man and Animal Health

TOPIC: Food and Animal Diseases

OBJECTIVE: To have an understanding of the threat that animal diseases offer our food supplies.

REFERENCE: Required:

Animal Diseases, 1956 Yearbook of Agriculture, pp. 7-10

QUESTIONS or ACTIVITIES:

1. How many pounds of food from animals does an average family of four consume per year?
2. What also demonstrates the need to keep animals healthy?
3. How many diseases can be transmitted from animals to man?
4. What led to laws requiring that settlers must bring livestock with them?
5. How many animals in the U.S. can be expected to die each year?
6. How do diseases cause even greater economic losses than death of animals?
7. What reflects our dietary preferences and therefore affects our nutrition?

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Man and Animal Health

TOPIC: Economic Losses

OBJECTIVE: To become familiar with economic losses due to animal diseases and parasites.

REFERENCE: Required:

Animal Diseases, 1956 Yearbook of Agriculture, pp. 11-14

QUESTIONS or ACTIVITIES:

1. Name the losses that are a result of animal diseases.
2. Death losses from diseases and parasites probably exceeds what percent of all causes?
3. Losses that show up after the animal leaves the farm include what?
4. What other losses can be charged to diseases and parasites?
5. How widespread is Federal meat inspection in the U.S.?
6. Most losses of baby pigs are due to what?
7. What losses result from poultry diseases?
8. What class of livestock do internal parasites hit the hardest?
9. What losses do insects cause?

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Man and Animal Health

TOPIC: Diseases Common to Man and Animals

OBJECTIVE: To become aware of the need for animal health standards to protect the health of the public.

REFERENCE: Required:

Animal Diseases, 1956 Yearbook of Agriculture, pp. 14-20

QUESTIONS or ACTIVITIES:

1. Diseases that are transmitted among animals and from animals to man are called what?
2. List the groups of zoonoses.
3. Animals are passive carriers of what organisms?
4. What is the most serious disease attributed to dogs?
5. An effective rabies control program is based on what three principles?
6. What common fungal disease is obtained from dogs and cats?
7. How is the tapeworm transmitted to man?
8. What are two common diseases transmitted from cattle?
9. Rats are well known for transmitting what two diseases?
10. Tularemia has its primary reservoir in what animals?

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Man and Animal Health

TOPIC: Parasites of Animals and Man

OBJECTIVE: To learn parasites common to animals and man and the methods of transmission.

REFERENCE: Required:

Animal Diseases, 1956 Yearbook of Agriculture, pp. 21-28

QUESTIONS or ACTIVITIES:

1. How does man acquire parasites from an animal?
2. How does man acquire the beef tapeworm?
3. How can we prevent bladderworms in pork and the pork tapeworm in man?
4. How does man become infested with the hydatid tapeworm?
5. Other types of tapeworms are transmitted to man from what animals?
6. What is the common source of trichinosis?
7. What is the most effective safeguard in preventing trichinosis?
8. Other roundworm infestation in man can be attributed to what animals?

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Principles of Disease Control

TOPIC: Causes of Disease

OBJECTIVE: To learn the common causes of infectious and non-infectious diseases in livestock and poultry.

REFERENCE: Required:

Animal Diseases, 1956 Yearbook of Agriculture, pp. 29-40

QUESTIONS or ACTIVITIES:

1. How do bacteria and viruses enter an animal's body?
2. Define the term "health".
3. List factors that may affect an animal's resistance to infection.
4. What type of media do viruses require for growth?
5. What major groups of the animal kingdom contain parasites that affect man, livestock, and poultry?
6. Name the protozoans and the animals that they affect.
7. How do external parasites affect the health of animals?
8. Name the types of non-infectious diseases.

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UNIT: Principles of Disease Control

TOPIC: How Diseases and Parasites are Spread

OBJECTIVE: To understand why and how various diseases and parasites are spread from animal to animal and place to place.

REFERENCE: Required:

Animal Diseases, 1956 Yearbook of Agriculture, pp. 40-45

QUESTIONS or ACTIVITIES:

1. The ability of an infection to spread is based largely on what?
2. Name two organisms that retain a high degree of virulence for long periods outside the animal body.
3. How are bacteria and viruses spread?
4. How do farm animals acquire parasites?
5. What are practices that contribute to the spread of parasites?

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UNIT: Principles of Disease Control

TOPIC: Genetics and Disease

OBJECTIVE: To understand the importance of genetics in preventing, treating, and controlling diseases.

REFERENCE: Required:

Animal Diseases, 1956 Yearbook of Agriculture, pp. 46-54

Supplemental:

Livestock and Poultry Production, Bundy and Diggins, pp. 667-671

QUESTIONS or ACTIVITIES:

1. What kind of role does heredity play in pathology?
2. Define the science of genetics.
3. We must recognize what three variables as being responsible for disease?
4. An induced change in a chromosome or the genes of a chromosome by x-rays, ultraviolet rays, or chemicals is called what?
5. In what ways has mutation in bacteria been demonstrated?
6. What types of immunity are considered to be due to genetic influence?
7. For vaccination or immunization to be effective, the animal must have what ability?
8. What conditions can change the antibody response of a genetically resistant animal?
9. Read supplemental reference, pp. 667-671.

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UNIT: Principles of Disease Control

TOPIC: Protection From Diseases and Parasites

OBJECTIVE: To learn methods, procedures, and principles in protecting animals from diseases and parasites.

REFERENCE: Required:

Animal Diseases, 1956 Yearbook of Agriculture, pp. 54-60

QUESTIONS or ACTIVITIES:

1. Name two ways "early-day" farmers tried to stop the spread of diseases.
2. What was the major factor to increase the rate of disease spread?
3. What was the first big accomplishment in preventing disease?
4. Name another important development made by Pasteur.
5. What are the two basic principles in preventing exposure?
6. How should the carcass of an animal that dies of hog cholera or anthrax be handled?
7. What is the most common way of exposing healthy herds to disease?
8. What is a most practical method of protection against transmissible diseases?

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UNIT: Principles of Disease Control

TOPIC: Feeding and Management

OBJECTIVE: To become aware of the need for proper feeding and management practices to prevent diseases and parasites.

REFERENCE: Required:

1. Animal Diseases, 1956 Yearbook of Agriculture, pp. 60-62
2. Stockman's Handbook, Ensminger, page 83

QUESTIONS or ACTIVITIES:

1. How does proper feeding affect animal health?
2. For maximum resistance in animals, good nutrition must be coupled with what?
3. What kind of diet is recognized as aiding animals in having higher resistance to parasites?
4. How can improper feeding of a good diet reduce the resistance of an animal?
5. List causes of dietary deficiencies.
6. What are factors that assist in increasing an animal's natural resistance?
7. Name influences that lower resistance.
8. Study the water requirements of livestock on page 83 in reference No. 2, and outline points in the water needs of beef cattle, sheep, swine, and horses.

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UNIT: Principles of Disease Control

TOPIC: Quarantines and Eradication Programs

OBJECTIVE: To learn the importance of group, county, state, and federal action and principles of such action in controlling diseases and parasites.

REFERENCES: Required:

1. Stockman's Handbook, Ensminger, pp. 587-590
2. Animal Diseases, 1956 Yearbook of Agriculture, pp. 62-70

QUESTIONS or ACTIVITIES:

1. What federal agency is responsible for regulatory activities in animal-disease control?
2. What is meant by quarantine?
3. List the procedure of the types of quarantines.
4. When was the first quarantine law passed?
5. How long are quarantines for imported animals?
6. What are the six purposes of public stockyard inspection?
7. Federal indemnity payments are made on what diseases?
8. The appraisal value of animals is established by whom?
9. Texas pays no indemnity payments for which disease?
10. Ask veterinarian about specific county and state regulations that concern him.

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UNIT: Methods of Disease Control

TOPIC: Prevention

OBJECTIVE: To learn the principles involved in maintaining a good animal health program to prevent diseases and parasites.

REFERENCE: Required:

Stockman's Handbook, Ensminger, pp. 572-580

QUESTIONS or ACTIVITIES:

1. Why are changes needed from time to time in a well-planned animal health program?

2. Why is housing and close confinement necessary?

3. What are requisites of good housing?

4. Name three purposes of ventilation.

5. Why should rodents and birds be controlled?

6. List points to practice when adding new animals to a herd or flock.

7. List the methods of disposing of carcasses.

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for
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UNIT: Methods of Disease Control

TOPIC: Treatment

OBJECTIVE: To learn the general methods of treatment of livestock diseases and parasites and the importance of therapy supports.

REFERENCE: Required:

Animal Diseases, 1956 Yearbook of Agriculture, pp. 71-75

QUESTIONS or ACTIVITIES:

1. Give a definition of treatment.
2. What are the three general types of treatment?
3. Distinguish between direct and indirect therapy.
4. How can drugs be administered to livestock?
5. How may drugs be given by mouth if animal will not accept them in food or water?
6. What are possible problems in giving drugs by mouth?
7. List the types of physical therapy.
8. Supporting therapy should be aimed at what?

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UNIT: Methods of Disease Control

TOPIC: Principles of Parasite Control

OBJECTIVE: To understand that special principles are needed to determine and explain the mesures used in controlling parasites.

REFERENCE: Required:

Animal Diseases, 1956 Yearbook of Agriculture, pp. 75-88

QUESTIONS or ACTIVITIES:

1. To be effective, control measures must be applied in what manner?
2. What are the two keystones or major methods of parasite control?
3. Give two examples of parasite eradication in the United States.
4. What knowledge is required to develop control measures for a parasite?
5. What are the successive host stages of parasites?
6. Give two examples of attacking a certain life stage of a parasite.
7. What are measures used to prevent and destroy contamination of pastures?
8. What climatic conditions favor parasite development?
9. Chemical control measures offer what advantages?

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UNIT: Methods of Disease Control

TOPIC: Internal Parasite Control

OBJECTIVE: To learn the basic methods used in controlling internal parasites and to understand that new specific methods are continually being developed.

REFERENCE: Required:

Animal Diseases, 1956 Yearbook of Agriculture, pp. 80-85

QUESTIONS or ACTIVITIES:

1. What is the oldest and most practical method of internal parasite control?
2. How are chemical agents used most profitably in a control program?
3. Why is phenothiazine ranked an outstanding antithelmintic?
4. Sodium flouride is a chemical used to control what parasite?
5. What is the main disadvantage of sodium flouride?
6. Name two compounds that are used in place of sodium flouride.
7. What is accepted as a standard treatment for large roundworms and hookworms in dogs?
8. What chemical is effective for removing tapeworms in livestock?
9. Sulfonamides are known to aid in controlling what disease?
10. What are possible effects of antibiotics on internal parasites?

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UNIT: Methods of Disease Control

TOPIC: External Parasite Control

OBJECTIVE: To acquaint student with common methods of controlling external parasites.

REFERENCE: Required:

Animal Diseases, 1956 Yearbook of Agriculture, pp. 85-87

QUESTIONS or ACTIVITIES:

1. List insecticides that have been used for many years to control external parasites.
2. Name some newer insecticides.
3. What is a major concern in developing effective insecticides?
4. What two factors are considered in determining safety of an insecticide?
5. Name two common insecticides derived from plants.
6. What are two main disadvantages of DDT?
7. Methoxychlor has what advantage over DDT?
8. What insecticide is used in the screwworm control preparation, EQ-335?
9. Why does chlordane have limited use on livestock?
10. Name other new insecticide materials.

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UNIT: Methods of Disease Control

TOPIC: Veterinary Biological Products

OBJECTIVE: To learn the importance of biologicals, their uses, and their regulation and to learn principles involved in their development, usage, handling, and care.

REFERENCE: Required:

Animal Diseases, 1956 Yearbook of Agriculture, pp. 88-93

QUESTIONS or ACTIVITIES:

1. What was the first successful experiment in immunization?
2. Most infective pathogens are in what three groups?
3. Natural immunity or resistance is caused by what substances in the animal's body?
4. List the classifications of veterinary biological products.
5. What is an antigen?
6. Antiserums and antitoxins contain large amounts of what?
7. Distinguish between bacterins and mixed bacterins.
8. How are diagnostics and diagnostic antigens used?
9. Name the three types of vaccines.
10. Before being released for use, veterinary biological products must be tested for what?
11. List suggestions for persons who handle and use biological products.

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UNIT: Methods of Disease Control

TOPIC: Disinfectants

OBJECTIVE: To learn principles of disinfection and the characteristics of common disinfectants.

REFERENCE: Required:

Animal Diseases, 1956 Yearbook of Agriculture, pp. 98-102

QUESTIONS or ACTIVITIES:

1. What is disinfection and when is it possible?
2. What type of compounds are used in cleaning?
3. Give the characteristics of lye.
4. What is the purpose of wetting agents?
5. List five conditions to consider for disinfectants to be effective.
6. How does "hard water" affect disinfection?
7. List characteristics of cresylic compounds.
8. What is meant by "phenol coefficient of 5"?
9. What are characteristics of the hypochlorites?
10. What do the iodophore compounds depend on for germicidal activity?
11. What is an easy way to determine the germicidal strength of iodophore compounds?
12. List characteristics of the quaternary ammonium compounds.

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UNIT: Methods of Disease Control

TOPIC: Chemical Poisoning

OBJECTIVE: To become familiar with toxic effects of some common chemicals and principles of control.

REFERENCE: Required:

Animal Diseases, 1956 Yearbook of Agriculture, pp. 113-117

Supplemental:

Stockman's Handbook, Ensminger, pp. 574-579

QUESTIONS or ACTIVITIES:

1. Why is arsenic a common cause of accidental poisoning?
2. Animals with acute arsenic poisoning may show what symptoms?
3. Chronic flourine poisoning results from what?
4. What parts of the animal's body does fluorosis affect?
5. How do animals get lead poisoning?
6. Under what conditions does molybdenum poisoning occur in cattle and sheep?
7. What may produce nitrate poisoning?
8. What can be done to prevent salt poisoning?
9. What causes selenium poisoning?
10. Study Table 8-13, pp. 574-579 in supplemental reference.

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UNIT: Methods of Disease Control

TOPIC: Poisonous Plants

OBJECTIVE: To become familiar with common poisonous plants, their effects on livestock, and principles of control.

REFERENCE: Required:

1. Stockman's Handbook, Ensminger, pp. 556-571
2. Animal Diseases, 1956 Yearbook of Agriculture, pp. 118-130

QUESTIONS or ACTIVITIES:

1. Why are plants not readily classed as poisonous or non-poisonous?
2. Where do most losses occur from poisonous plants and why?
3. List four conditions that indicate plant poisoning.
4. The intensity of plant poisoning depends on what 4 factors?
5. List nine measures to prevent plant poisoning.
6. What steps should be taken when plant poisoning is encountered?
7. What is meant by "cyanogenetic plants"?
8. Define and give common sources of alkaloids.
9. What is a glucoside?
10. List four other poisonous substances occuring in plants.
11. List six plants that contain unknown and miscellaneous poisons.
12. Study Table 8-12, pp. 558-571, reference No. 1.

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UNIT: Methods of Disease Control

TOPIC: Toxicity of Insecticides

OBJECTIVE: To learn the toxic effects of various basic compounds and the principles of handling and proper usage.

REFERENCE: Required:

Animal Diseases, 1956 Yearbook of Agriculture, pp. 131-142

QUESTIONS or ACTIVITIES:

1. When are petroleum oils harmful and how do they affect the animal?

2. List factors that influence the toxicity from synthetic organic insecticides.

3. What part of the animal's body is usually affected by these insecticides?

4. What are common symptoms of most chlorinated hydrocarbon poisoning?

5. Stiffness and lameness are symptoms of poisoning from which insecticides?

6. Discuss the treatment and care for animals with toxic effects from cholrinated hydrocarbons.

7. Organic phosphorus insecticide poisoned animals will usually show what symptoms?

8. What is the specific treatment for poisoning from organic phosphorus compounds?

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Methods of Disease Control

TOPIC: Pesticide Regulations

OBJECTIVE: To learn the importance of pesticide residues, the precautions in using pesticides, and the regulations pertaining to pesticides.

REFERENCE: Required:

1. Animal Diseases, 1956 Yearbook of Agriculture, pp. 143-147
2. Stockman's Handbook, Ensminger, pp. 532-549

QUESTIONS or ACTIVITIES:

1. How do animal products become contaminated with pesticide residues?
2. Most residues are stored where in the animal body?
3. List insecticides in the approximate order of their tendency toward storage in animal fat?
4. What federal laws regulate insecticides and what does each provide?
5. How can the proper concentration of sprays and dips be prepared?
6. Summarize each of the ten points in handling and applying pesticides.
7. List minimum days from last application to slaughter of cattle when using Ronnel, Ruelene, and Co-Ral.
8. List precautions in using Co-Ral.

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UNIT: Sterilization and Disinfection Procedures

TOPIC: Principles of Sterilization

OBJECTIVE: To learn the need for and the principles of sterilization and disinfection.

REFERENCE: Required:

Information Sheet,"Principles of Sterilization"

QUESTIONS or ACTIVITIES:

1. What are the two general methods of destroying bacteria and other micro-organisms?
2. Define germicide, fungicide, and antiseptic.
3. X-Rays are effective in treating what infections?
4. List factors to consider when using heat to sterilize.
5. What is an example of sterilizing a substance at temperatures lower than its boiling point?
6. Name two effective methods of moist heat sterilization.
7. List the formulas for changing Centigrade to Farenheit and Farenheit to Centigrade.
8. Change 40°C. to Farenheit. Change 70°F. to Cetigrade.
9. What are two standards or measurement tests for disinfectants?
10. What does the toxicity index show?

Information Sheet
on
PRINCIPLES OF STERILIZATION

The need for the use of sterile preparations, instruments, dressings, and equipment emphasizes the necessity of various methods for killing bacteria in the veterinary clinic. Since bacteria are present under normal conditions, it is necessary for the student to learn the principles and procedures used in sterilization and disinfection.

The destruction of bacteria and other micro-organisms may be classed in two general groups:

1. Physical- usually referred to as sterilization
2. Chemical - often called disinfection

Thus, bacteria are usually killed either by dehydration or by coagulation. Sterilization commonly applies to a method that kills both pathogenic (harmful) and non-pathogenic organisms. The term disinfection is usually used when only pathogenic organisms are considered.

Other terms with which the student should be familiar are:

a. Bactericide - A general term for any agent used to kill or destroy bacteria
b. Germicide - Any substance that kills germs (harmful organisms)
c. Fungicide - That which kills fungi
d. Antiseptic - Substance that inhibits the growth of bacteria
e. Aseptic - Condition where no pathogens are present
f. Preservative - An antiseptic or disinfectant mixed with serums or vaccines in small quantities to inhibit the growth of unwanted organisms. Formalin and phenol are examples.
g. Deodorant - May or may not be disinfectant. Removes or creates odor.

The two practical methods of physical sterilization are by using light and heat. Electricity and x-rays are not considered to have practical application except that x-rays are effective in treating fungus infections. Ultra-violet and infrared light have some germicidal effects, but bacterial resistance varies according to the type of light wave lengths and the exposure time.

Principles of Sterilization
(Information Sheet continued)

In using heat to sterilize, several facotrs should be considered. The temperature needed for destruction will vary with each type of organism. The absence of moisture (dry heat) requires much higher temperatures to be effective. The reaction (pH - or acidity or alkalinity) affects the thermal death point of organisms. The time that the organism is exposed to the heat is most important; the higher the temperature, the faster the organism will be killed. Sterilization by direct flame is highly effective.

Sterilization of some substances is accomplished at temperatures lower than their boiling point. Certain serums and anti-serums for the treatment of animals are sterilized in this manner. Pasteurization of milk is a good example -- the holding or vat method requiring temperature of 142 to 145°F. for a period of thirty minutes; the flash or short-time method requiring 160°F. for fifteen seconds.

The use of steam to furnish heat and moisture (such as in an autoclave) is an effective, practical method of sterilizing instruments, etc. Placing instruments in boiling water for thirty minutes is effective in destroying micro-organisms except those that are classed as spore-forming bacteria.

Directions for sterilization by heat may list the temperature requirements in degrees Centigrade (C) or Farenheit(F). At sea level atmospheric pressure, water freezes at 0°C. or 32°F. and boils at 100°C. or 212°F. The following formulas are used to convert Centigrade to Farenheit and Farenheit to Centigrade.

$F = 9/5C. + 32$

$50^\circ C. \times 9/5 = 90$

$90 + 32 = 122^\circ F.$

$C = 5/9\,(F - 32)$

$122^\circ F. - 32 = 90$

$90 \times 5/9 = 50^\circ C.$

The general principles of disinfection and the common disinfectants were discussed in Unit VII, Topic 7 so they will not be repeated. The phenol coefficient of disinfectants was also described, but it should be noted that this standard is not satisfactory when organic materials are present and it does not take into consideration the effect of a compound on living tissue. Therefore; another standard, the toxicity index, is also used. The toxicity text index is designed to test disinfectants that are to be used to disinfect wounds and to prepare patient for surgery. It may be defined as the highest dilution of a disinfectant required to prevent embryonic tissue growth divided by the highest dilution to kill the test organism. An ideal antiseptic kills bacteria without harming tissue.

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UNIT: Sterilization and Disinfection Procedures

TOPIC: Sterilizing Techniques

OBJECTIVE: To learn the techniques and requirements of proper and efficient sterilization.

REFERENCES: Required:

Information Sheet, "Sterilizing Techniques"

QUESTIONS or ACTIVITIES:

1. Describe the preparation of instruments before they are sterilized.
2. List four common methods of sterilizing by heat.
3. What factors determine the method to use in sterilizing instruments and material?
4. What is probably the most practical, effective method of sterilization?
5. List the operating pressure, temperature, and time for an autoclave.
6. What is the main disadvantage of an autoclave?
7. What are the temperature and time requirements for dry heat sterilization?
8. Sterilization by chemicals should be limited to what?
9. How much time is needed for formaldehyde to destroy spores?

Information Sheet
on
STERILIZING TECHNIQUES

Before instruments are sterilized by any method, they should be free of all blood, pus, feces, oil, or other materials. To properly clean them, instruments may need soaking in a detergent or soap solution and scrubbing. Thorough rinsing and polishing should follow the cleaning process.

Surgical instruments may be divided into the following groups:

1. Those that will withstand moist heat sterilization
2. Those with sharp cutting edges that corrode when exposed to moist heat
3. Those that are not resistant to heat so require chemical sterilization

Four common methods of sterilizing by heat are:

1. Boiling in water
2. Autoclave (steam under pressure)
3. Flame
4. Oven (dry heat or hot air)

Which of the above methods to use will be determined by several factors. These factors include type of instrument, type of material, available equipment, available time, and personal preference.

Placing instruments, especially needles, in boiling water (100°C. for thirty minutes) is a common method of sterilization. It should be noted that this method does not kill some spores. Making sure that there are no air pockets and that all instruments are covered with water will increase the efficiency of this method. The addition of 2% sodium carbonate or 0.1% sodium hydroxide to the water, making it alkaline in reaction, will increase the germicidal action and decrease the corrosive action of the water. The added alkalinity will reduce the time requirement from thirty to fifteen minutes and still be effective.

Probably the most practical, effective method of sterilization is the use of steam under pressure in the autoclave or in a pressure cooker if an autoclave is not available. The main disadvantage is that corrosion may occur on certain instruments. This method requires steam under fifteen pounds per square inch pressure for fifteen minutes at 121°C. or 250°F. The temperature should be rigidly maintained for maximum effect. To sterilize dressings or other textiles, or utensils wrapped in cloth, the packages should be placed in autoclave without crowding so the steam has easy access to them.

When using direct flame or dry heat in an oven, the temperature must be carefully controlled or certain instruments may be ruined by losing their temper (degree of hardness). The oven or dry heat temperature to kill all becteria is 175°C. for two hours.

Techniques in sterilizing rubber gloves are discussed in Unit VIII, Topic 4.

Sterilization of instruments by using chemicals is often not effective for several reasons. Recommended concentrations may have bacteriostatic action (control growth of organisms) rather than germicidal action. Chemicals may be selective in their action - destroy some organisms and only inhibit action of other organisms. The effect of some chemicals may depend on an exact concentration and the presence of any blood, oil, or other materials may reduce their efficiency. The sterilization of instruments by using chemicals should be limited to those instruments that might be harmed by heat.

Among a number of chemicals that have been tested for sterilizing instruments, one of the few that was found suitable was formaldehyde (a formalin solution). The instrument must be absolutely clean and must remain in the solution for eighteen hours to destroy spores. Because it may be irritating to the tissue of individual animals, the formaldehyde should be allowed to evaporate or be rinsed off before the instrument is used.

It is important that sterilized instruments and materials be stored and kept in a sterile condition and not become contaminated before they are used.

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UNIT: Sterilization and Disinfection Procedures

TOPIC: Preparing Hands and Field of Operation

OBJECTIVE: To learn procedures in preparing hands and disinfecting the field of operation.

REFERENCE: Required:

Information Sheet, " Preparing Hands and Field of Operation"

QUESTIONS or ACTIVITIES:

1. Normal skin bacterial population is composed of what two groups?
2. Which group is the hardest to remove or destroy?
3. List steps in washing hands.
4. List ways to increase the efficiency of a germicide.
5. Why are sterile gloves necessary for an aseptic operation?
6. How should the germicide be applied to the skin of the patient?
7. Why should the scapel to make the skin incision not be used in deeper tissues?

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Information Sheet
on
PREPARING HANDS AND FIELD OF OPERATION

Before an operation is performed, it is necessary to properly cleanse the hands of the operator and the skin of the patient. Certain precautions and practices should be observed to insure proper healing and to prevent any infections until healing is complete.

In understanding pre-operative preparation of the hands, it should be noted that the normal skin has a bacterial population composed of both transient and resident bacteria. Most transient bacteria are removed by thorough cleansing with soap and water. Some transient and the resident bacteria may be located in skin crevices, glands, and hair follicles where they are more difficult to remove or destroy.

The following steps can be used in preparing the hands:

1. Keep finger nails trimmed short.
2. Clean under finger nails.
3. Scrub all parts of the hands at least thirty times, using stiff brush and soap or detergent.
4. Scrubbing should continue for five to seven minutes.
5. Rinse well with cool, running water.
6. Dry hands with sterile towel.
7. Cover hands with a good germicide.

The germicide should be used for its effect on the remaining transient and resident bacteria. The veterinarian may use a commercially prepared germicide or a solution such as the following examples:

A 70% by weight concentration of ethyl alcohol.
Mix at a temperature of 25° C.
815 c.c. of Ethyl Alcohol (95 % at 25° C.)
1000 c.c. of distilled water
or
675 c.c. of Ethyl Alcohol
250 c.c. of N. Propyl Alcohol (C.P.)
250 c.c. of distilled water

Friction from rubbing alcohol on hands with gauze will increase the efficiency. Also, efficiency will be maintained if hands are dry before applying germicide.

Preparing Hands and Field of Operation
(Information Sheet continued)

Using the most effective method of disinfection will not make the hands sterile; therefore, it is necessary to use sterile rubber gloves if the operation is going to be aseptic.

In preparing the field of operation, it is usually necessary to shave the operative area on the animal. After shaving, the skin should be thoroughly washed with soap and water, rinsed, and dried.

The area may then be scrubbed with gauze or cotton and one of the germicide alcohol solutions mentioned above. The alcohol should be allowed to dry slowly to increase its efficiency.

Another method of skin disinfection consists of applying U. S. P. tincture of iodine and allowing it to dry slowly before washing the area with the alcohol. Other specific methods are discussed in the unit entitled Professional Assistance, Topic 7.

The greatest danger of contamination will be from resident bacteria in the deeper portions of the patient's skin in the sebaceous glands and hair follicles. The scapel that is used to make the skin incision should not be used in deeper tissues.

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Assignment Sheet
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UNIT: Sterilization and Disinfection Procedures

TOPIC: Sterile Gloves and Gown

OBJECTIVE: To learn the proper preparation, sterilizing techniques and methods of putting on gloves and gown.

REFERENCE: Required:

Information Sheet, "Sterile Gloves and Gown"

QUESTIONS or ACTIVITIES:

1. How should gloves be prepared before sterilization?
2. Describe the wet-glove technique of putting on gloves.
3. What are two advantages of the wet-glove method?
4. How are the sterile dry gloves held while putting them on?
5. What portions of the sterile gown should not be touched?
6. In what position should the assistant be while assisting with the sterile gown?

Information Sheet
on
STERILE GLOVES AND GOWN

If an operation is to be aseptic, the operator and his assistants must wear sterile rubber gloves. For proper sterilization, the gloves must have the proper preparation before being placed in the autoclave. It is necessary to place a pad of gauze in each cuff to permit the interchange of air and steam in the fingers and palm of the glove. A powder puff may be made of the gauze pad by placing about one gram of talcum powder in the meshes of the pad. To insure proper air and steam interchange, the gloves should be placed in the sterilizer on edge with the thumbs up. They should then be sterilized at 15 pounds pressure and 250° F. for thirty minutes.

Gloves may be put on either dry or wet. In using the dry technique, the hands are powdered before the dry gloves are put on. If the wet glove technique is used, the gloves are removed from their sterile container and are placed in a sterile basin containing a germicidal solution. With the gloves filled with the germicidal solution, the hands are forced into the distended gloves, allowing any excess solution to be forced out. A small opening in the glove will be detected when the glove is filled with the germicidal solution. It has been determined that the germicide will help keep the hand disinfected during the operation and that the hands seem to be in better condition after the operation.

A procedure for putting on the sterile gloves by the dry glove technique is as follows:

1. **After the assistant opens the gloves wrap, the operator removes the powder envelope from the wrap and covers his hands with powder.**
2. **The outside surface of the glove should never be touched so the operator picks up the left glove with his right hand, holding the glove by the turned-down cuff.**
3. **Without unfolding the cuff, put the left hand into the glove about two-thirds of the way with the aid of the right hand.**
4. **Use the left gloved hand to hold the cuff of the right glove and insert right hand.**
5. **Unfold each cuff up over each wrist and sleeve of gown.**

Sterile Gloves and Gown
(Information Sheet continued)

When putting on the sterile gown, it is important not to touch the front of the gown nor to allow the gown to touch any objects. The gown should be taken from the bundle, held at the neck and allowed to unroll. With the back of the gown toward you, carefully unfold it. Insert the left arm into the sleeve while holding the collar at the left tie string with the left hand. Then, hold the collar at the right tie string with the left hand and insert right arm into sleeve. While waiting for the assistant to tie and adjust the gown, both arms are extended upward. To assist with the gown, the assistant, standing directly behind the operator, places his hands only on the shoulders and inside of gown and does not touch the sides or front of the gown while tying the strings.

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Restraining Animals

TOPIC: Principles in Restraining Animals

OBJECTIVE: To learn common principles of physical and moral restraint of animals.

REFERENCES: Required:

Restraint of Animals, Leahy and Barrow, pp. 1-5

QUESTIONS or ACTIVITIES:

1. What is restraint?
2. Why is animal restraint so important in the veterinary practice?
3. What is meant by moral restraint of animals?
4. What is effective moral restraint based on?
5. How can the knowledge to exercise moral restraint be acquired?
6. List precautions in applying restraint.
7. What effective restraints can be combined with force?
8. List factors to consider in choosing a restraint.
9. How should restraint be applied to prevent arousing the animal's resistance?
10. Why is it so important that the handler have complete control of his emotions?

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Restraining Animals

TOPIC: Common Knots

OBJECTIVE: To become familiar with and develop the ability to use commonly used knots and halters.

REFERENCE: Required:

Restraint of Animals, Leahy and Barrow, pp. 6-37

QUESTIONS or ACTIVITIES:

1. Define end, standing part, bight, closed bight, and loop.
2. What are two characteristics of a good knot or hitch to control animals?
3. Define knot and hitch.
4. List factors in selecting and preparing rope for animal restraint.
5. List methods of preventing unraveling.
6. What are two splices to permanently join the end of a rope to the side?
7. Name knots used to join two pieces of rope.
8. List knots used for temporary fastenings.
9. What are the two common hitches?
10. Study and practice tying the fastenings on pp. 10, 11, 13, 18, 25, 26, 27, 28, 29, 33, 35, 36, and 37 until each can be done without the aid of the reference.

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931-IX-3
Page 1

Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Restraining Animals

TOPIC: Restraining Dogs and Giving Medication

OBJECTIVE: To learn principles and methods of restraining dogs and administering medication.

REFERENCE: Required:

Restraint of Animals, Leahy and Barrow, pp. 164-184

QUESTIONS OR ACTIVITIES:

1. List general precautions in handling dogs.
2. Name indications of an animal's mood.
3. How should a vicious dog or one exposed to rabies be caught?
4. List steps in forming a temporary muzzle.
5. How should the handler restrain a dog's head if no muzzle is used?
6. List steps in opening a dog's mouth.
7. How can liquid medicine be given to a dog when he is muzzled?
8. What should be used for an examination of a dog's mouth?
9. What are purposes of using an Elizabethan or pneumatic collar?
10. Describe how to tie a dog to a table with cord or bandage strip.
11. How should a handler hold a dog on his side on a table?
12. List steps in holding dog for intravenous injection.
13. Practice applying muzzles on a dog.

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Restraining Animals

TOPIC: Restraining Cats

OBJECTIVE: To learn common principles and procedures of restraining cats in the veterinary practice.

REFERENCE: Required:

Restraint of Animals, Leahy and Barrow, pp. 185-203

QUESTIONS or ACTIVITIES:

1. Describe the behavior pattern of the majority of cats.
2. List points to avoid injury to the cat or handler.
3. The veterinarian's choice of restraint is influenced by what?
4. How may vicious or ill-tempered cats be caught?
5. Why is a cloth or gauze muzzle better than adhesive tape?
6. Describe how to hold a cat on his side on a table.
7. How may a cat be restrained for intravenous injection?
8. List types of cat restraint devices.
9. How should a cat be held to give him a pill?
10. Determine restraint devices available in the veterinary clinic and become familiar with them.

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Restraining Animals

TOPIC: Restraining Horses

OBJECTIVE: To learn the principles and common methods and procedures of horse restraint.

REFERENCE: Required:

1. Information Sheet, "Restraining Horses"
2. Restraint of Animals, Leahy and Barrow, pp. 38-85

QUESTIONS or ACTIVITIES:

1. What is the effect of twitches, hopples, and casting harnesses?
2. List factors to consider in selecting the restraint to use on a horse?
3. What are precautions in using a twitch?
4. List seven types of hopples.
5. Study illustrations and make a permanent rope halter and a temporary rope halter.
6. What is the principle of a Yankee War Bridle?
7. Describe how to make a tail tie and practice making it.
8. The front leg hopple is used for what purposes?
9. What are the uses of breeding hopples?
10. What are the differences in effects of a cradle and a side stick?
11. List the types of casting harnesses.
12. Study the procedures in using a double side-line casting harness.

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Restraining Animals

TOPIC: Cattle Restraint

OBJECTIVE: To become acquainted with methods and procedures of restraining cattle.

REFERENCE: Required:

1. Information Sheet, "Cattle Restraint"
2. Restraint of Animals, Leahy and Barrow, pp. 86-125

QUESTIONS or ACTIVITIES:

1. What is the purpose of using tail restraint?
2. What is the difference in a nose lead and an Iowa cattle leader?
3. List restraints that prevent kicking.
4. What are the dangers in raising a leg by methods involving ropes?
5. The Frick speculum can be used for what purpose?
6. What are advantages of the Burley method of throwing cattle?
7. List steps in using a rope squeeze.

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Restraining Animals

TOPIC: Catching and Restraining Swine

OBJECTIVE: To learn principles and methods of catching and restraining swine.

REFERENCE: Required:

Restraint of Animals, Leahy and Barrow, pp. 126-163

QUESTIONS or ACTIVITIES:

1. List methods of catching swine.
2. Describe a simple method of moving a large hog.
3. What can be used to hold a hog after he is caught?
4. Describe the difference in position of the small and large pig being held for vaccination.
5. What can be used for an effective and simple hopple for pigs?
6. List methods of casting swine.
7. What is the purpose of the Leahy table?

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Restraining Animals

TOPIC: Restraining Sheep and Goats

OBJECTIVE: To learn principles and methods of restraining sheep and goats.

REFERENCE: Required:

Restraint of Animals, Leahy and Barrow, pp. 223-244

QUESTIONS or ACTIVITIES:

1. What damage may occur to a sheep in a struggle to catch and hold the animal?
2. What is necessary for a handler to deal successfully with sheep?
3. List the types of hurdles that can be used to contain sheep for easier catching.
4. How should a shepherd's crook be used to catch sheep?
5. How should a sheep be caught by hand?
6. How can the sheep be held for hoof trimming or for vaccination?
7. Describe how to restrain a sheep or goat for drenching.

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Assignment Sheet
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UNIT: Restraint of Animals

TOPIC: Restraining Laboratory Animals and Poultry

OBJECTIVE: To learn restraint principles and methods of common laboratory animals.

REFERENCE: Required:

Restraint of Animals, Leahy, and Barrow, pp. 245-268

QUESTIONS or ACTIVITIES:

1. How are fear and anger in rats indicated?
2. How is a gentle rat caught?
3. When is the tail used to lift a rat?
4. How can a rat be restrained for passing a stomach tube?
5. List restraints for taking blood samples.
6. What can be used to handle a vicious rat?
7. How can uncooperative mice be subdued?
8. Describe how to hold a guinea pig.
9. How is a rabbit held for intravenous injection?
10. How may a chicken be caught and held?
11. How is a chicken held for taking a blood sample or vaccination?

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Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Laws Related To Veterinary Practice

OBJECTIVE: To become familiar with laws and regulations affecting veterinarians and veterinarian assistants.

REFERENCES: Required:

1. Information Sheet, "Laws Related To Veterinary Practice"

Supplemental:

2. Law for the Veterinarian and Livestock Owner, Hannah & Storm, The Interstate Publishers & Printers

QUESTIONS or ACTIVITIES:

1. Name two ways that the Veterinary Practice Act protects the public.
2. Who administers the standards of the Practice Act?
3. What are three test questions designed to define veterinary practice?
4. The third test usually applies under what conditions?
5. List seven common exceptions included in most Veterinary Practice Acts.
6. Who is responsible for the actions of the assistant?
7. List four other factors in determining if the actions performed amount to unlicensed veterinary medicine.
8. How can the veterinarian be protected from liability for injuries to employees?
9. List three common law rules of negligence.

Information Sheet
on
LAWS RELATED TO VETERINARY PRACTICE

State Veterinary Practice Acts in each of the states were enacted to protect the public by requiring certain standards to be met before a person starts to practice veterinary medicine and by requiring all practioners to be licensed by the state. The Practice Act provides for the administration of the standards by creating a Board of Examiners. The Board of Examiners, a group of competent veterinarians appointed by the Governor, receive applications and examine the applicants before licenses are issued. The subjects included in the examination may be specified in the Practice Act or may be determined by the Board of Examiners.

In addition, the state law will usually do the following:

1. Define veterinary practice and prohibit practice by persons not qualified.
2. Assigns a state agency the responsibility of approving veterinary schools and courses of study.
3. Specifies qualifications other than educational requirements for receiving a license and specifies the fees to be charged.
4. Lists grounds for and procedures used in refusing, suspending, or revoking a license.

Most practice acts define veterinary practice by applying these test questions:

1. Is the person adding words or initials to his name that indicate he is a veterinarian?
2. Does he publicly state that he is a veterinarian?
3. Does he treat or prescribe treatment for animals?

The number three test usually applies to domestic animals and that compensation is received.

Common exceptions in the practice acts include:

1. Animal owners and their employees
2. Out-of-state veterinarians
3. Veterinary students
4. United States Army or U.S.D.A. veterinarians
5. Serum injections
6. Dehorning, castrating, and spaying
7. Services where no charge is made.

Laws Related to Veterinary Practice
(Information Sheet continued)

The veterinarian assistant is usually considered an agent of the veterinarian when he is employed by the veterinarian. It now seems to be accepted that hospital nurses assisting with an operation under a physician's direction are agents of the physician. So it would seem that the assistant would be an agent of the veterinarian when following the instructions of the veterinarian and under his direction. The law usually recognizes that the employer is responsible for the actions of the employee while the employee is engaged in doing work for the employer.

Because a person cannot legally practice veterinary medicine without a license, a licensed veterinarian cannot delegate to another any duty that would be defined as the practice of veterinary medicine. However, an assistant may give shots, apply dressings, and carry out certain other duties if he is acting directly with instructions from and under the direct supervision of the veterinarian. The assistant is not practicing veterinary medicine, but merely following and carrying out the instructions of the veterinarian who is responsible for the assistant's actions.

It should be noted that whether the actions performed amount to unlicensed veterinary medicine depends on the local and state customs, the degree of directions and instructions given by the veterinarian, the specific nature of the duty, and the skill of the assistant.

Without the protection of liability insurance or the state workmen's compensation act, the veterinarian may be held liable for injuries to employees that are received in the course of employment. However, the liability is determined by common law rules of negligence. These common law rules include the following:

1. Was the employee also at fault?
2. Did another employee cause or contribute to the injury?
3. Was the injury due to a dangerous tool or machine which the employee normally uses?

For example, a veterinarian assistant injured by a knife, needle, dog, or horse could not hold his employer liable unless the veterinarian contributed to the injury. These risks must be assumed by the assistant when he accepts the job.

Many other laws and regulations pertaining to the veterinary practice include the relations of the veterinarian and client, negligence and malpractice, local, state, and federal animal disease laws, food and feed laws, livestock and fence laws, and narcotic, drug, medicine, biologic and serum regulations. It is recommended that the student pursue the study of these laws and regulations with the aid of the supplemental reference and other references as time permits.

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Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: First Aid

OBJECTIVE: To learn principles and limits of first aid and how to render first aid to animals.

REFERENCES: Required:

Information Sheet, "First Aid"

QUESTIONS or ACTIVITIES:

1. Why should a veterinarian assistant have a knowledge of first aid?
2. What is first aid?
3. What is a good indication of shock?
4. List points in caring for an animal in a state of shock.
5. How may severe bleeding be controlled?
6. What should be determined before hand pressure or a tourniquet is applied?
7. What is the main consideration in caring for an animal with a broken bone?
8. What should be done for an animal with an eye protruding from the lids?
9. List steps in artificial respiration.
10. How can animals suspected of having rabies be handled?

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Information Sheet
for
FIRST AID

During the times that the veterinarian is out of the office, the veterinarian assistant may have a need for knowledge and skill of simple first aid procedures. Occassionally, prompt action on the part of the assistant may materially reduce the effects of an injury, reduce or stop severe bleeding, or prevent the death of an animal. It should be emphasized that emergency measures must be carried out with sound judgment and only when the veterinarian is not available.

It is felt that most cases requiring immediate attention or first aid by the veterinarian assistant will involve small animals with the possible exception of severe bleeding or hemorrhage of large animals. Therefore, most of the procedures discussed here will be pertaining to small animals.

First aid might be defined as the care or treatment of sick or injured animals until the services of a veterinarian can be obtained. Keep in mind that proper restraint of the animal is very important to prevent injuries to the animal and the handler during first aid care. Various methods of animal restraint are covered in another course unit so they will not be discussed now.

Animals injured by automobiles or other vehicles may be in a state of shock, unconscious and may be bleeding internally and/or externally. Because of the possiblility of internal injuries, broken bones, concussion, etc., the animals should be carefully handled when being moved or restrained.

Gums that are pale or grayish, instead of healthy pink color, will indicate either a state of shock or internal hemorrhage. Treatment by the veterinarian will be necessary to control the internal hemorrhage.

An animal in shock should be kept very still and quiet without undue distractions that will make him move around. Overheating should be avoided in warm weather, but it is well to cover the animal with some type of blanket so that body temperature will be maintained.

Severe bleeding may be controlled by applying pressure with your hands at a specific point on the body, by use of pressure bandages, or by applying a tourniquet. To properly control the flow of blood, it should be determined if it is from an artery or a vein. That from an artery will be bright red and in spurts

First Aid
(Information Sheet continued)

as the heart beats while blood from a vein will be darker and flowing steadily. If a pressure bandage directly on the wound does not control the bleeding, pressure should be applied with hands or a tourniquet - above the wound for an artery and below the wound for a vein. If a tourniquet is required, it must be applied tightly enough to stop the bleeding and it should be loosened every ten to fifteen minutes. Most bleeding can be and should be controlled with a pressure bandage or by hand pressure.

An animal with a broken bone should be kept very still to reduce pain and to reduce the possibility of a broken bone cutting important blood vessels. If needed to prevent movement of a broken leg, a temporary splint can be applied. If a prepared splint is not available, two thin, stiff pieces of wood, metal, or other material may be used. The leg should be padded with cotton, and splint stick placed in front and on the side as gauze or other material is wrapped around leg.

If an animal's eye is protruding from the lids, the eye should be kept moist with sterile pads moistened with warm, distilled water until the veterinarian arrives.

An animal suffering from apparent drowning or electrical shock should be given artificial respiration. This is accomplished by laying the animal on its side, pressing straight down on his chest with the palm of your hand, and releasing the pressure quickly. After the pressure forces the air out of the animal's lungs, the releasing of the pressure will allow the normal expansion of the chest to draw air back into the lungs. Repeat the cycle every 4 or 5 seconds until the animal is breathing normally. Artificial respiration should not be applied to animals with possible rib or chest injuries.

An animal suspected of having rabies should not be handled directly. He should be isolated in cage, closet, or room by using a broom, chair, or other object to force his movements. If this is not effective, cover him with a blanket or other heavy cloth folded several times before the animal is handled.

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Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Simple Anatomy of Animals

OBJECTIVE: To become familiar with the external body parts, digestive tracts, reproduction tracts, and hormone action in ruminants and non-ruminants.

REFERENCES: Required:

Livestock and Poultry Production, Bundy and Diggins, pp. 7, 31-35, 73, 158, 201, 257-259, 301, 338, 356-358, 664-666

QUESTIONS or ACTIVITIES:

1. Define ruminant and a non-ruminant and give examples.
2. Name the four compartments of the ruminant stomach.
3. List digestive processes occuring in the rumen.
4. What are the functions of the other three compartments?
5. List the three digestive organs of poultry and give their functions.
6. Why is it so important for young animals to receive colostrum?
7. Name the parts of the female reproductive system.
8. List the parts of the male reproductive system.
9. The functions of hormones include what?
10. Stilbestrol is a synthetic, manufactured chemical similar to what hormone?
11. The "let-down" of milk is influenced by what?

UNIT: Professional Assistance
TOPIC: Simple Anatomy of Animals
(Assignment Sheet continued)

12. Study figure 9-5, page 158 in reference to become familiar with the relationship of the internal body organs.

13. Study and know the external body parts of the hog, beef animal, and dairy animal.

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Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Using X-Ray Equipment

OBJECTIVE: To learn the basic principles of operating and using x-ray equipment and to learn safety precautions and practices.

REFERENCES: Required:

1. Information Sheet, "Using X-Ray Equipment"

Supplementary:

2. *Veterinary Radiology*, W. D. Carlson, Lea and Febiger, Philadelphia, Pennsylvania

QUESTIONS or ACTIVITIES:

1. What is used to determine the proper settings on an x-ray machine?
2. What settings are needed on most machines?
3. What does the kvp setting affect?
4. The milliameter is used to determine what?
5. What determines the exposure time?
6. List 5 important factors when using the thickness measurement and technique chart to determine settings.
7. What is the purpose of cone, lead diaphragm, and grid?
8. What is the advantage of using screened cassettes?
9. A lateral view refers to what?
10. List 8 safety precaustions and practices while using the x-ray.
11. Name 2 practices in caring for lead gloves and aprons.

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Information Sheet
on
USING X-RAY EQUIPMENT

Good radiographs (x-ray films) are usually produced by the operator who knows the basic principles of operating the equipment and who has developed the techniques needed in processing the film. Common principles of x-ray machine operation will be discussed with emphasis on safety included.

In general, before an x-ray is taken, the part of the animal to be examined is measured for thickness in centimeters. A technique chart is then used with the measurement figure to determine the proper machine settings. These settings on most machines include kilovoltage peak (KVP), milliamperage (MA), time, and distance. These settings will be discussed with the assumption that the machine is installed properly, with proper voltage and proper circuit protection, and that it is in good working condition.

In setting the kilovoltage dial, the operator is actually setting the autotransformer which selects a voltage that the machine later converts to kilovoltage. There is also a "high and low" kilovoltage switch which, in effect, doubles the number of positions on the kilovoltage dial.

The kilovoltage setting affects the milliampere setting so the (KVP) dial on most machines will have the (KVP) values printed at each (ma) setting. Any milliampere change will change the kilovoltage. The milliammeter will register only when an x-ray is produced, so it can be watched to see if the machine operates properly.

The automatic timer dial is used to pre-determine the exposure time. Most mobile machines will have settings from 1/10 of a second to 15 seconds.

If the machine has a voltage compensator control, its purpose is to maintain a constant voltage coming into the machine so that every exposure will be uniform. A voltmeter will show the incoming voltage by the needle being above or below the center line showing high or low voltage respectively. As the needle will drop slightly during exposure, it is well to set the needle slightly above the line (1/16 ") before turning the "on and off" switch to the "on" position.

In using the thickness measurement and the technique chart to determine the settings of the controls, it is important to :

1. Use the fastest exposure time possible.
2. Use the highest Kvp possible up to 90 Kvp.

Using X-Ray Equipment
(Information Sheet continued)

3. Use a constant distance (30 " is a good distance) .
4. Use the highest constant ma setting available within the Kvp setting to reduce the time of exposure.
5. Measure the animal accurately.

It is recommended to use only one brand of film to avoid slight differences in exposure and processing.

Many accessories are available for the x-ray machine, but only the items that are believed to be essential will be discussed.

Cones or lead disphragms are essential for safety to the animal and operator. They limit the x-ray beam to the size of the film, preventing scattered radiation. The grid is a sheet of lead strips used between the animal and the cassette to also prevent scattered radiation from passing through. Only the vertical direct beam will pass through to expose the film. The use of screened cassettes as film holders is recommended to allow a much shorter exposure time. Screened cassettes are available in a number of speeds and the use of high-speed screens is encouraged. Various types of cassette holders can be made or bought to hold the cassettes in a vertical position. The holder should be used instead of a person holding the film, and it should be easily adjustable, up or down. Blocks or boxes made of wood may be needed to elevate an animal's feet to the center of the x-ray beam. The block or box may have a slot to hold the film in a vertical position. For accurate measurements in centimeters, a caliper should be used. Some type of film marker should be used to mark the film before development, the date, case number, and the clinic or veterinarian. Markers showing "right" and "left" and "lateral aspect" are of equal importance. Absolutely essential are lead aprons and lead gloves to be worn by the operator and anyone holding an animal while an x-ray is made.

The normal positions for radiography and the common terms involved should be familiar to the assistant. Most x-ray examinations are made from at least two views. One view shows one plane and the second view is at a 90° angle to the first view. The terms dorsal (upper or top view) and ventral (lower or bottom view) are limited to the head, neck, body, and tail. Anterior (front) and posterior (rear) are terms used to refer to the legs. Lateral view always refers to a side view.

Radiation from x-rays is potentially dangerous to the operator if excessive exposure is received. A few safety devices plus the practice of some safety precautions will eliminate any hazard from excessive radiation. Safety devices and precautions include the following:

Using X-Ray Equipment
(Information Sheet continued)

1. Anyone not needed in the x-ray room should not be permitted.
2. Every person should wear a lead apron and, if holding animal, wear lead gloves.
3. Limit the beam to the size of the film with a cone or lead diaphragm.
4. The x-ray beam should not be directed into another room or work area.
5. An aluminum filter (1 to 2 mm. thick) should be installed at the tube housing opening to eliminate radiation from useless wave lengths.
6. The bottom side of the x-ray table should be covered with lead to protect the feet.
7. The hands should not be placed in the path of the direct beam.
8. Do not use fluoroscopy when radiography will do the job. Fluoroscopy is more hazardous and requires additional safety precautions.

To help prevent deterioration of lead gloves and lead aprons:

1. Roll or drape apron over curved surface instead of folding it.
2. Store gloves by hanging or by placing cans with both ends open inside gloves to keep the gloves open to allow moisture to evaporate. The condition of gloves and aprons can be checked perodically by radiographing to determine if they allow any x-rays to pass through.

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Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Developing X-Rays

OBJECTIVE: To learn the principles and proper steps in processing radiographs.

REFERENCES: Required:

1. Information Sheet, "Developing X-Rays"

Supplemental:

2. Veterinary Radiology, W. D. Carlson, Lea and Febiger, Philadelphia, Pennsylvania

QUESTIONS or ACTIVITIES:

1. Why should a processing room be light proof?
2. When and how should processing tanks be cleaned?
3. What is the desired temperature and time requirement for the developer?
4. How and why should the developer be replenished?
5. What change does the developer bring about?
6. The clearing and fixation process does what to the film?
7. How long should the film remain in the fixer?
8. List the steps in the final washing process.
9. How are films dried?
10. List processing conditions that can cause fogging of films.
11. What may cause films to be too dark?

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Information Sheet
on
DEVELOPING X-RAYS

To obtain good results in radiography, proper processing of the film is essential. Processing requirements include:

1. Processing room
2. Storage for film and cassettes
3. Developing
4. Rinsing
5. Fixation
6. Washing
7. Drying

Film for x-rays is a gelatin sheet coated on both sides with an emulsion containing silver halide crystals. These crystals are delicate and sensitive to visible light, x-ray, gamma-ray, heat, pressure, moisture and certain gases. Therefore, the processing room or dark room must be light-proof and x-ray proof to prevent fogging of film. A "safe-light" with a filter may be used in the processing room with the wattage of the bulb not to exceed the filter recommendations. The equipment for processing should include a bench for unloading and reloading cassettes, storage for unexposed film and cassettes, film hangers, developing tank, intermediate wash tank, fixer tank, and final wash tank. Drying may be done in open air or in a heated circulating air dryer. Processed x-rays should have the corners trimmed and be placed in a properly labeled envelope to be stored on end.

The processing tanks should be cleaned at each change of solution. A good solution for stainless steel and hard rubber tanks is Clorox diluted in four parts water with a fiber brush being used for scrubbing.

With the processing room dark except for the safe-light, the film should be carefully removed from the cassette without touching the cassette screen and by holding the film by the corners. The film should be clipped into the bottom clips and then the top clips of the film hanger. It is now ready to be placed in the developing solution.

The developer, a solution that changes the invisible image on a film into a visible image, should be stirred before inserting the film, If the solution is at the desired 68°F., the film should remain for five minutes. Other temperatures from 60°F. to 76°F. will require different development times and can be determined by time-temperature charts. Solution temperatures below 68°F. will require longer times and above 68°F. will require shorter development times. An attempt to maintain a constant temperature of 68°F. and a five minute time is important for consistently good radiographs.

Developing X-Rays
(Information Sheet continued)

When the solution turns a brown color, it should be discarded. Until that time, it can be replenished by adding a concentrated chemical mixture, called a replenisher, to keep it at full strength.

The developing chemicals that turn the exposed silver halides to metallic silver which is black, may be in liquid or powder form. Either type will contain the following chemicals:

1. Sodium sulfite - A preservative to reduce oxidation of the reducers
2. Sodium carbonate - An alkali to speed developing
3. Potassium bromide or potassium iodide - A restrainer to reduce fog on radiograph
4. Reducing Agents - Produce the change from the exposed silver halide to metallic silver.

While the film is in the developer, the cassette can be reloaded, taking care to handle the film by the corners while taking it from the storage box and placing it in the cassette.

The film should be removed from the developer in one fast motion to prevent any solution from the film dripping back into the developer and be placed in the rinse tank. If the rinsing is done in clean, circulating water, this process should only require about 30 seconds. To prevent too much dilution of the fixer, the film should be well drained before being placed in the fixer.

When the film is placed in the fixer, it should be moved up and down for about 15 seconds. This agitation will help prevent streaking and will speed up the fixation. The clearing and fixation process removes the unexposed silver halide crystals from the emulsion and hardens the gelatin coating for radiograph permanence. The temperature of the fixation solution should be 68° F.; the same as the developer temperature. The total time requirement for the fixation process includes the time it takes to clear the film of the milky-white material plus the time it takes to harden the emulsion. A general rule for the total fixation time is twice the development time. To prevent streaks and foggy areas ("fixer-fog"), the light should not be turned on until film has been in the fixer at least 30 seconds; longer if the solution is old. Films that are not "fixed" will become yellow and the image will eventually fade. The fixing solution is composed of the following compounds:

1. Sodium thiosulfate ("hypo") - Clearing agent in powder
   Ammonium thiosulfate - Clearing agent in liquid
2. Sodium sulfite - Preservative andhelps to clear film
3. Aluminum salts or alum - Harden the gelatin and shortens the drying time
4. Acetic acid - Assists reaction of chemicals and neutralizes any alkaline developer present

Developing X-Rays
(Information Sheet continued)

The final washing should be done in running water at 68°F. for at least 20 minutes to prevent discoloration. A 20 minute washing time is usually adequate if the water is curculating at a rate of 10 complete changes per hour. If the rate is only two to three changes per hour, up to 40 minutes may be necessary.

The finished x-rays should be completely dried in open air or in an x-ray dryer and stored as described earlier.

Some precautions to be strictly observed in processing x-ray film are emphasized below:

1. Keep the processing room cool and light-proof.
2. Keep water and solutions at 68°F. if possible; always within a range of 60°F. to 75°F.
3. If the temperature varies from 68°F., use the time-temperature chart to make the proper adjustment.
4. Do not guess at processing times or temperature.
5. Do not allow films to touch each other.
6. Use a replenishing system to maintain proper concentration and proper level of solutions.
7. Handle cassettes and films as described.
8. Keep solutions covered when not in use.
9. Keep accurate records, label, and store films properly.

If films are exposed properly, processing conditons that can cause films to be "fogged" include:

1. Weak developer
2. Old developer
3. Underdevelopment
4. Light leak in processing room or safe-light too bright
5. Developer temperature too low or too high

Films that are too dark may have been over-exposed when x-ray was taken or over-developed while being processed

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Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Surgical Instruments and Terminology

OBJECTIVE: To develop the ability to identify various instruments used by the veterinarian ans to understand and use instrument terminology used by veterinarians.

REFERENCE: Required:

Information Sheet, "Surgical Instruments and Terminology"

QUESTIONS or ACTIVITIES:

1. List the three types of points on straight surgical scissors and the three common sizes.
2. Describe bandage and stitch scissors.
3. Name two types of canine tonsil snares.
4. How does a bistoury scapel differ from other scapels?
5. Hemostats may have what types of blades and locks?
6. What is the primary purpose of stomach tube speculums and guides?
7. List common sizes of nylon and glass syringes.
8. Name the five types of tips available on nylon and glass syringes.
9. How are syringe needles sized?
10. List the different shapes of suture needles.
11. How are catheters sized?
12. How do mammary infusion tubes or needles differ from syringe needles?

UNIT: Professional Assistance
TOPIC: Surgical Instruments and Terminology
(Assignment Sheet continued)

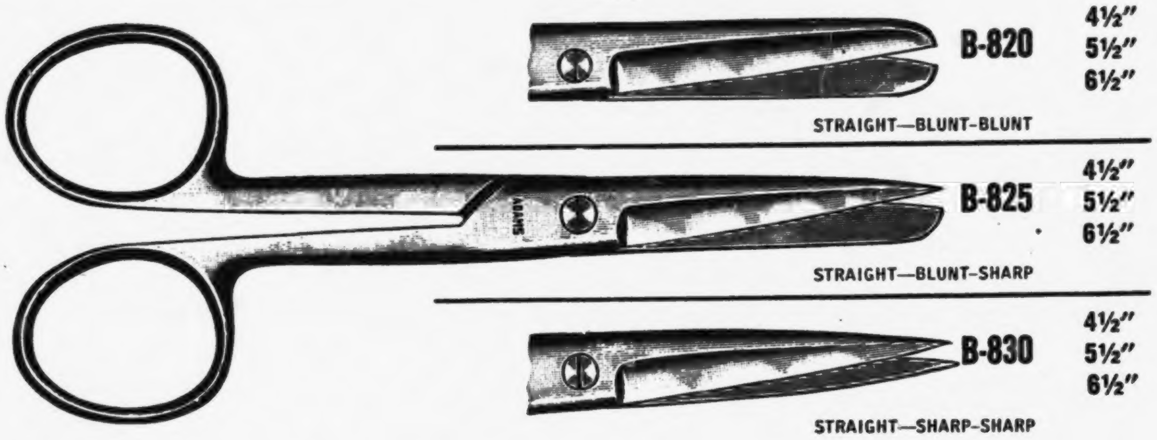
13. Study all illustrations in information sheet and be able to identify them at veterinary clinic.

14. Become familiar with terminology regarding all illustrations.

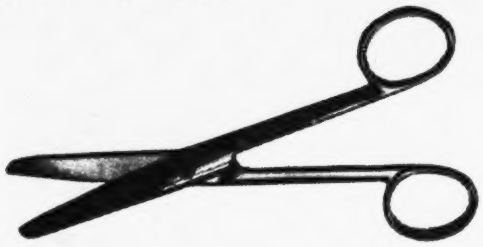
15. As time permits, study and become familiar with the instruments at the veterinary clinic.

Information Sheet
on
SURGICAL INSTRUMENTS AND TERMINOLOGY

SURGICAL SCISSORS

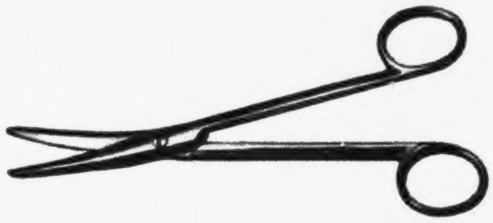

B-820
4½"
5½"
6½"
STRAIGHT—BLUNT-BLUNT
B-825
4½"
5½"
6½"
STRAIGHT—BLUNT-SHARP
B-830
4½"
5½"
6½"
STRAIGHT—SHARP-SHARP

CURVED OPERATING

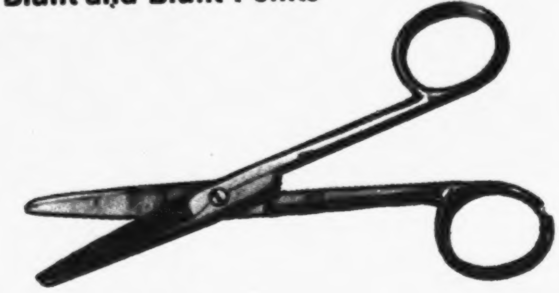


5½"

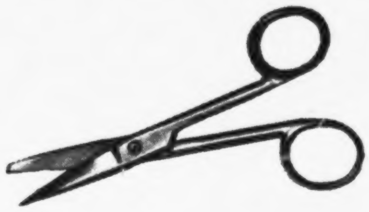
6¾" CURVED MAYO



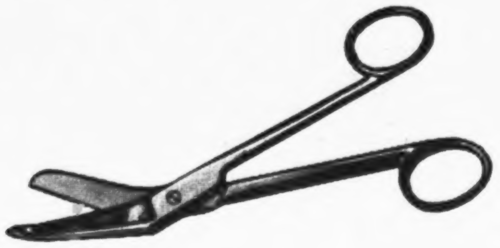
5½" STRAIGHT OPERATING
Blunt and Blunt Points



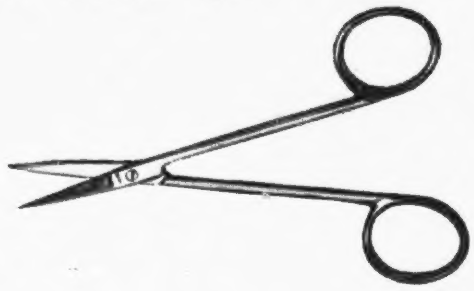
5½" STRAIGHT OPERATING
Sharp and Blunt Points



7¼" LISTER BANDAGE

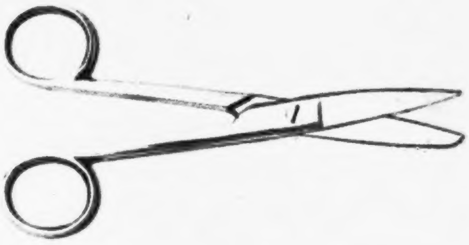


4½" CURVED IRIS



SCISSORS

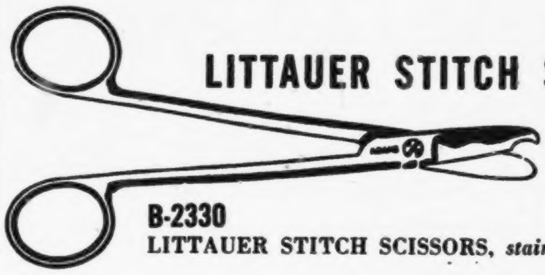
Operating Scissors



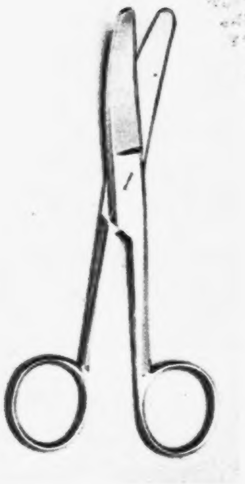
Chrome Plated, 5½"

Stainless Steel, 5½"

LITTAUER STITCH SCISSORS

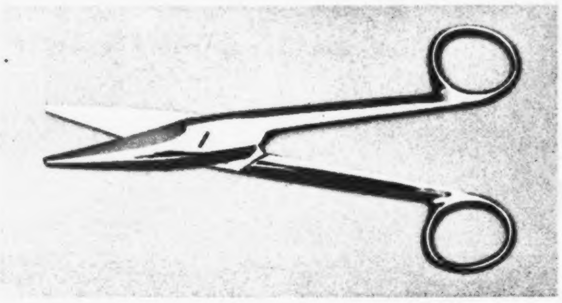


B-2330
LITTAUER STITCH SCISSORS, *stainless steel*, 5½".



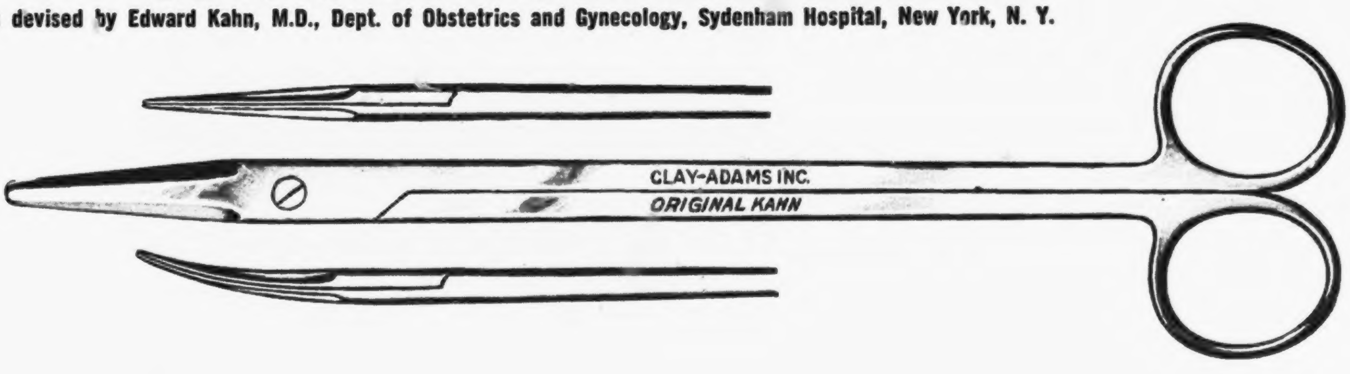
Extra Heavy, Curved, 6½"

Canine Ear Scissors

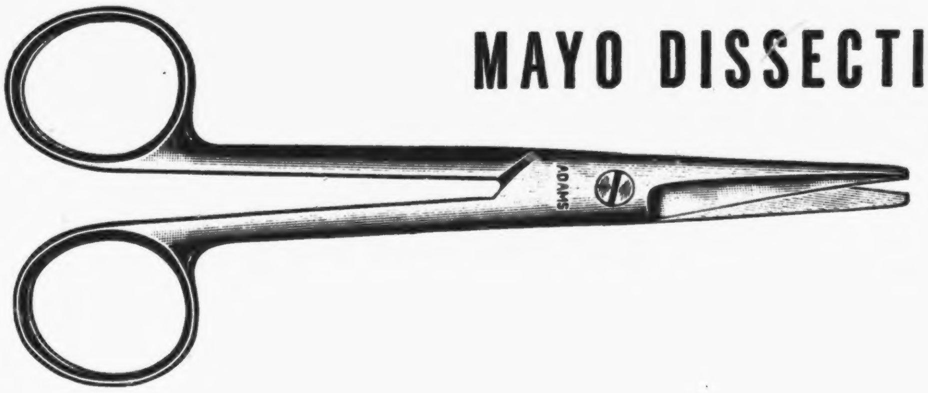


SURGICAL DISSECTING SCISSORS

As devised by Edward Kahn, M.D., Dept. of Obstetrics and Gynecology, Sydenham Hospital, New York, N. Y.



MAYO DISSECTING SCISSORS



KNIVES AND PROBES

(A) Stiff Probe

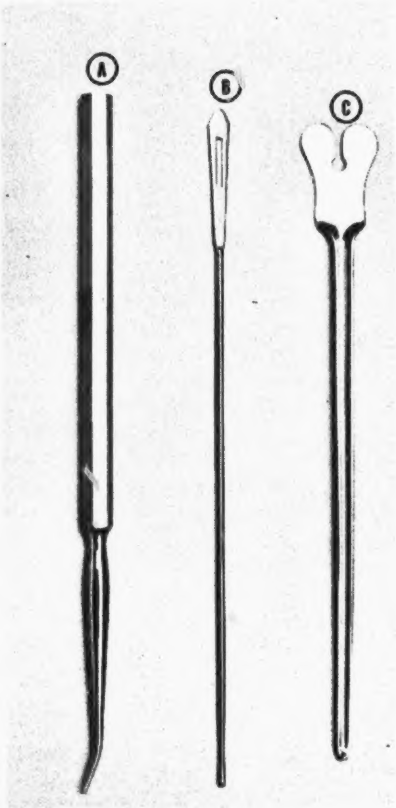
Angular, semi-blunt point. Octagon handle. 6" long, nickel-plated.

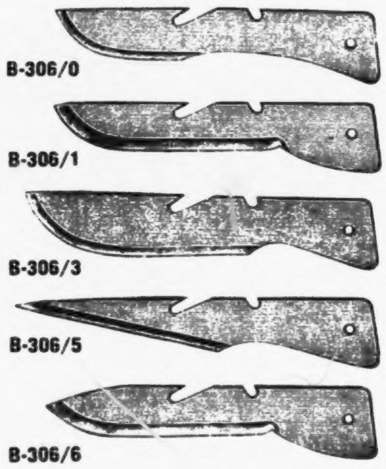
(B) Plain Probe

Flexible, chrome plated. 6" long, with eye.

(C) Grooved Director

Stainless steel. Rounded point with tongue tie. Length 5½".

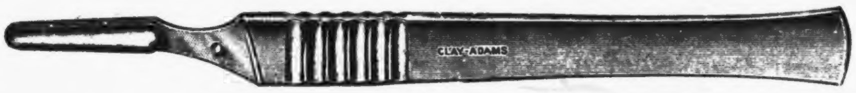


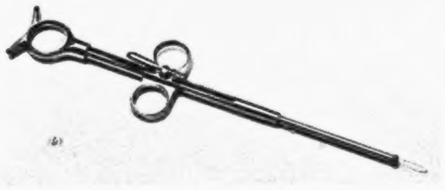


ADAMS SUPREME HANDLES AND BLADES

Positive, Easy attachment. The blade is first slipped on to the tip and then snapped over the pin in one easy operation. It cannot move up, down or sideways. This results in a scalpel of the same rigidity as the one-piece scalpel.

Five different styles of replaceable blades, of highest quality surgical steel, honed to a razor edge, are available for use on this handle. These blades are thicker than the Justrite blades.





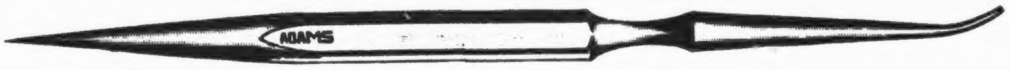
Southern Canine Tonsil Snare

Automatic ratchet action as wire is withdrawn by pressure on finger grips. Ratchet lever is released easily with slight pressure. Dual-method handle may be operated by inserting thumb or applying pressure with inside of hand against crutch. Complete with 12 snare wires. Stainless steel. Length 10".

Eastman Canine Tonsil Snare

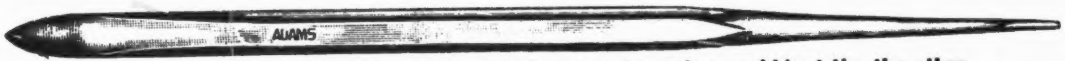
Offset handle allows unobstructed vision. Precision made to sever tonsil with steady pressure on control handle. Complete with 12 snare wires. Stainless steel.

PROBES, SEEKERS, DRY DISSECTORS



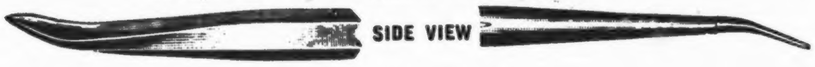
PROBE and SEEKER

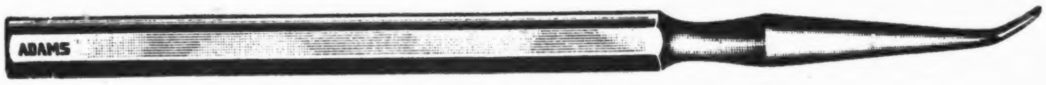
6" x 6 mm diameter, nickel plated. One end angular semi-blunt tip, the other end tapered and pointed.



BARTLETT PROBE and SEPARATOR

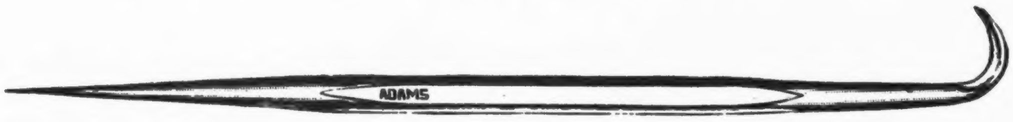
6" x 6 mm diameter, nickel plated; one end angular semi-blunt tip, the other end tapered flat and angled for blunt separation.





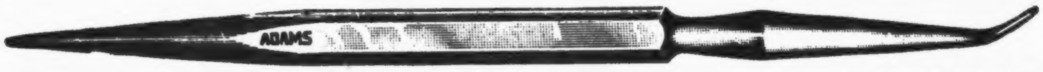
MALL PROBE and SEEKER

6" x 8 mm diameter, nickel plated steel, angular semi-blunt tip.



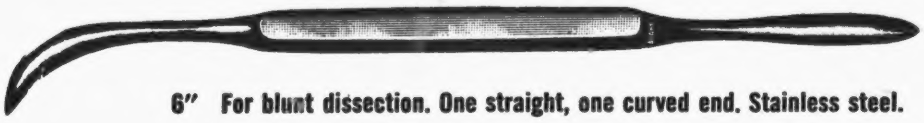
PROBE and SEEKER

6" x 6 mm diameter, chrome plated. Curved end with sharpened inner edge. Other tip is finely pointed.



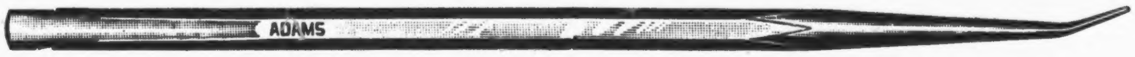
CLARK PROBE

6" x 8 mm diameter, chrome plated steel; one end angular semi-blunt tip, the other tip rounded, tapered.



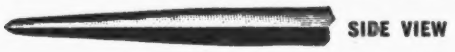
ALLIS DRY DISSECTOR

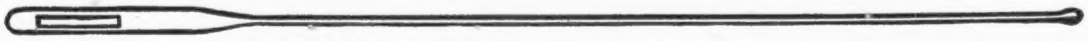
6" For blunt dissection. One straight, one curved end. Stainless steel.



HUBER PROBE and BLUNT SEPARATOR

6" x 6 mm diameter. Angular semi-blunt tip, other end tapered and flat for blunt separation. (As suggested by Dr. J. Franklin Huber, Temple U. Coll. of Medicine)

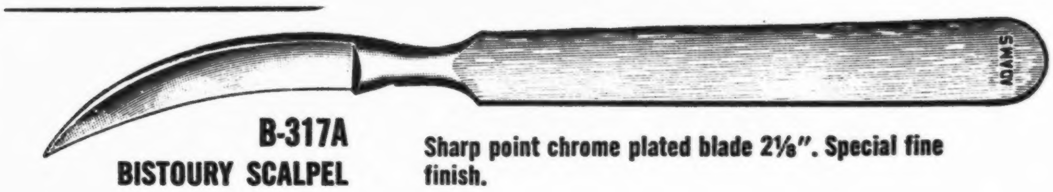




FLEXIBLE PROBE

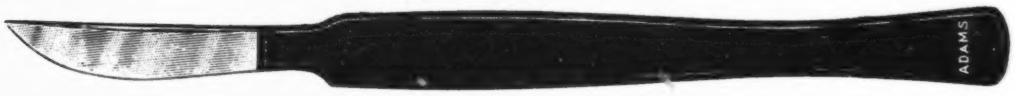
6", Chrome plated nickel silver. One end flat, with eye, other end olive tip.

SCALPELS

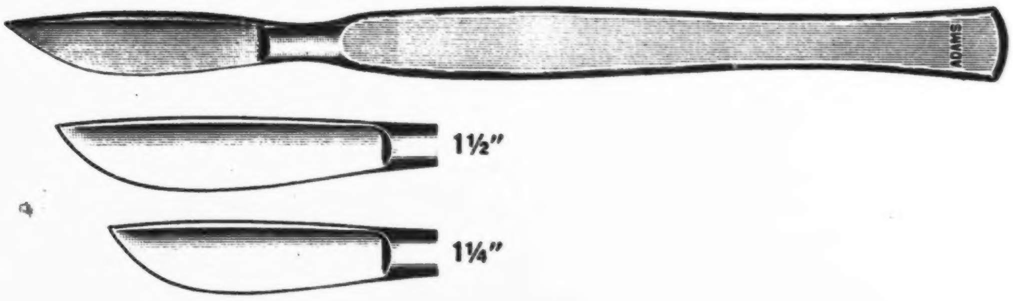


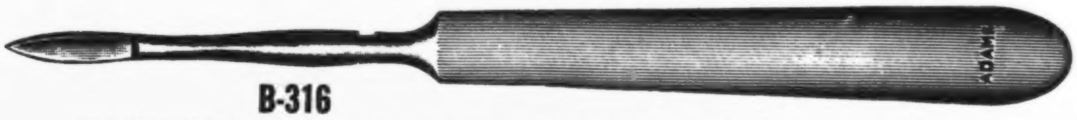
B-317A
BISTOURY SCALPEL

Sharp point chrome plated blade 2⅛". Special fine finish.



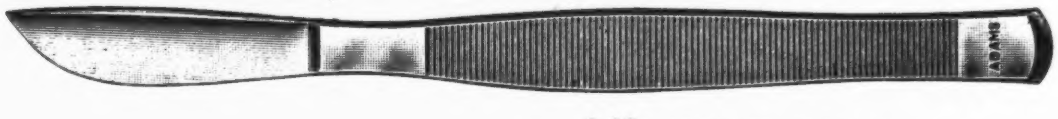
Blade 1½" with polished, fine edge; black baked-on smooth finish handle.



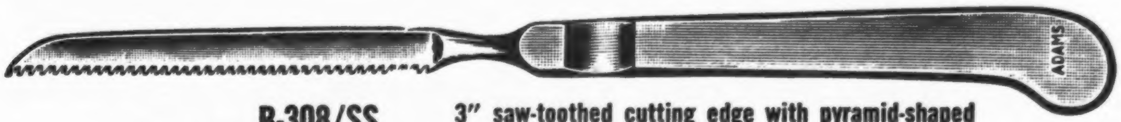


B-316
DISSECTING SCALPEL
(Tenotome)

Blade ¾" (for fine dissection), overall 5¾". All steel chrome plated satin finish.



A-10 CARTILAGE KNIFE. Blade 1¾", overall 6⅛". All steel, nickel plated with serrated handle and scraper on handle end.

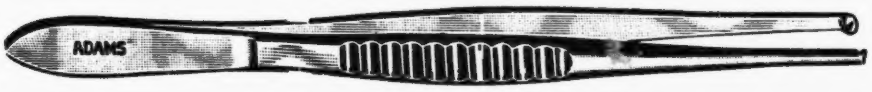


B-308/SS
BRUN'S BONE SAW

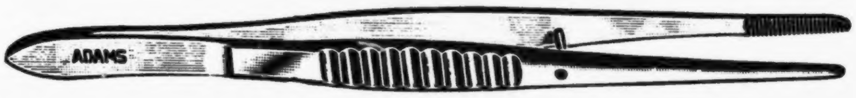
3" saw-toothed cutting edge with pyramid-shaped teeth. Overall 7½". Stainless steel with satin finish handle.

Surgical Instruments and Terminology
(Information Sheet continued)

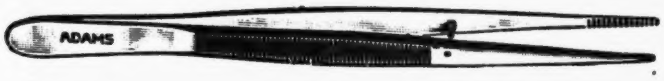
FORCEPS



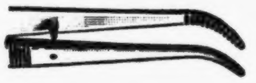
B-645/SS TISSUE FORCEPS, 1 x 2 Teeth, stainless steel.
4½" ....
5" ....



B-630/SS THUMB FORCEPS, finely serrated tips, broad serrations on handle, guide pins, stainless steel.
4½" ....
5" ....

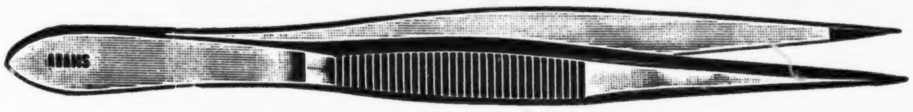


B-630XC DISSECTING FORCEPS, STRAIGHT, medium points, guide pin, chrome plated ....

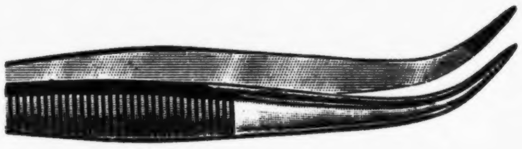


B-631/C DISSECTING FORCEPS, CURVED, medium points, guide pin, chrome plated ....

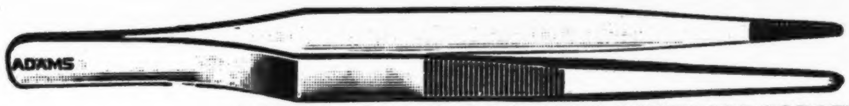
CARTILAGE FORCEPS, 5" FINE POINTS, nickel plated.



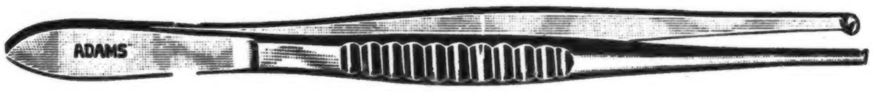
A-63 STRAIGHT



A-63X CURVED

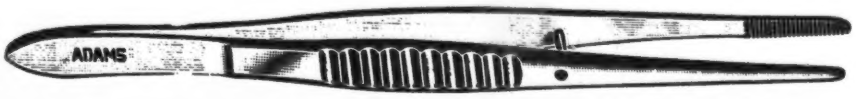


A-66 **CHICAGO PATTERN CARTILAGE FORCEPS, 5½"**, BROAD POINTS, nickel plated. For heavy cartilage dissection. Wide angle bowed handle for grasping of large areas. Fine serrations on tips and handle



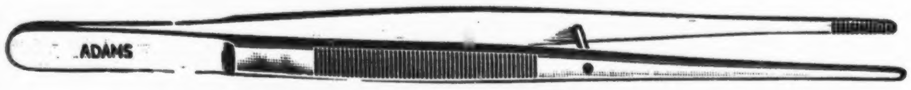
TISSUE FORCEPS 1 x 2 teeth

4½"
5"
5½"
6"



THUMB DRESSING FORCEPS Finely serrated tips, broad serrations on handle. Guide pins

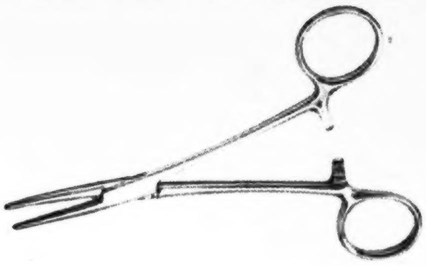
4½"
5"
5½"
6"

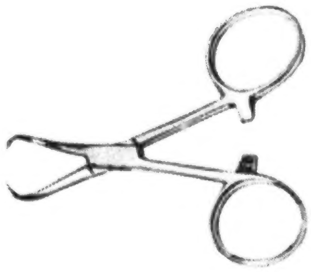


SPECIMEN THUMB FORCEPS
Serrated tips and handles. Guide pins

8"
10"
12"

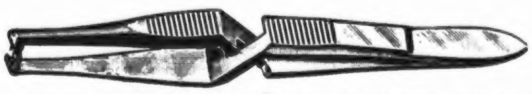
5½" KELLY-MURPHY FORCEPS





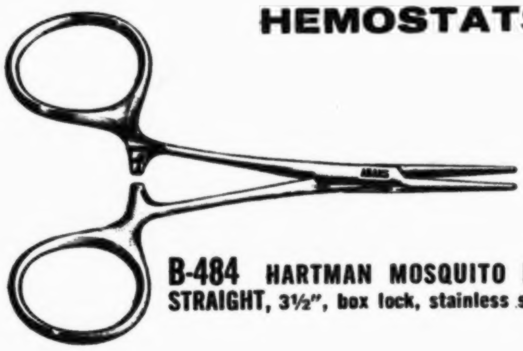
3" BACKHAUS TOWEL CLAMP FORCEPS

WOUND CLIP FORCEPS

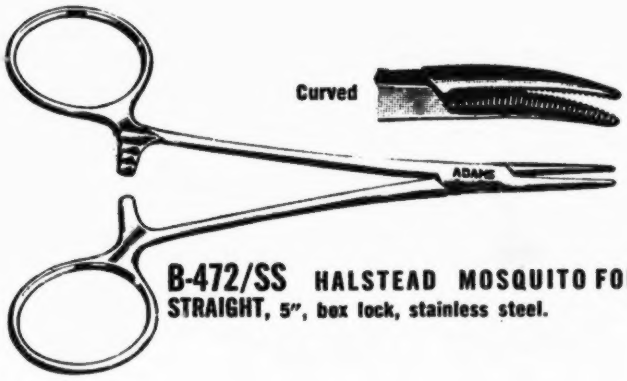


B-2323 HEGENBARTH-ADAMS WOUND CLIP FORCEPS, *Stainless steel. Self-retaining, clips do not fal out*

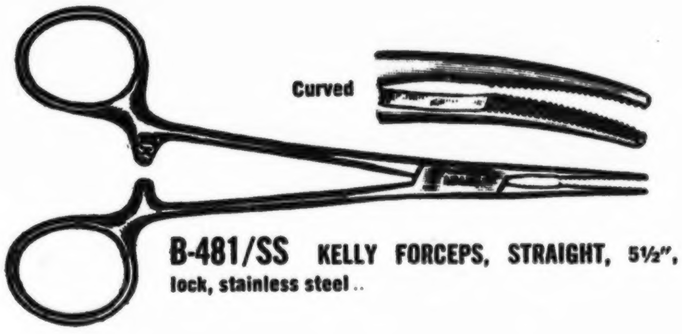
HEMOSTATS



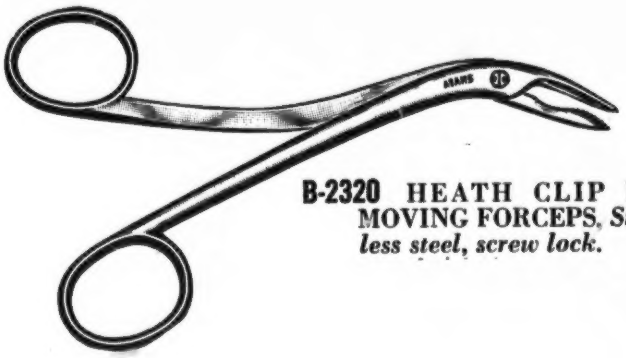
B-484 HARTMAN MOSQUITO FORCEPS, SMALL, STRAIGHT, 3½", box lock, stainless steel.



B-472/SS HALSTEAD MOSQUITO FORCEPS, STRAIGHT, 5", box lock, stainless steel.

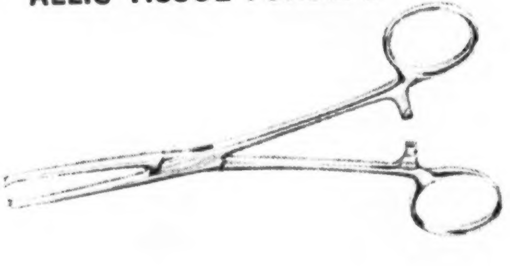


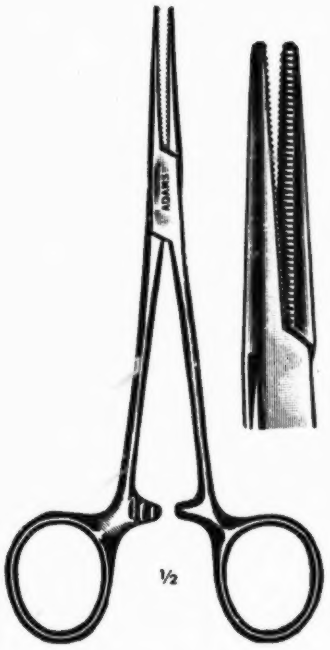
B-481/SS KELLY FORCEPS, STRAIGHT, 5½", box lock, stainless steel..



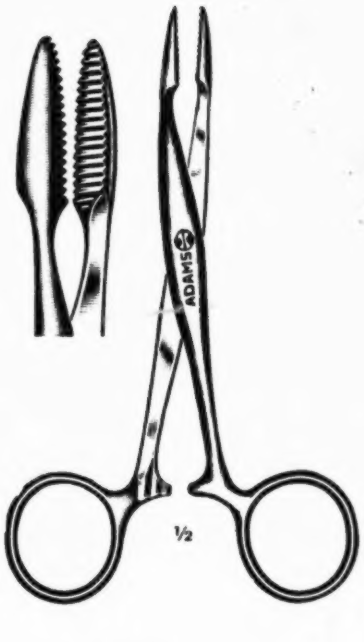
B-2320 HEATH CLIP REMOVING FORCEPS, *Stainless steel, screw lock.*

6" ALLIS TISSUE FORCEPS



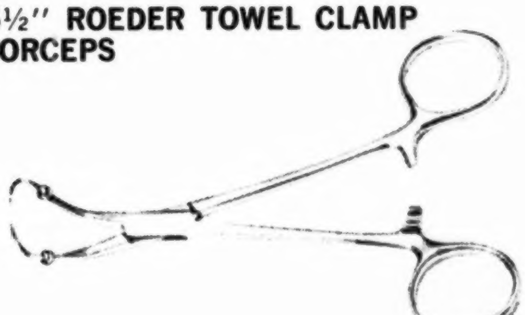


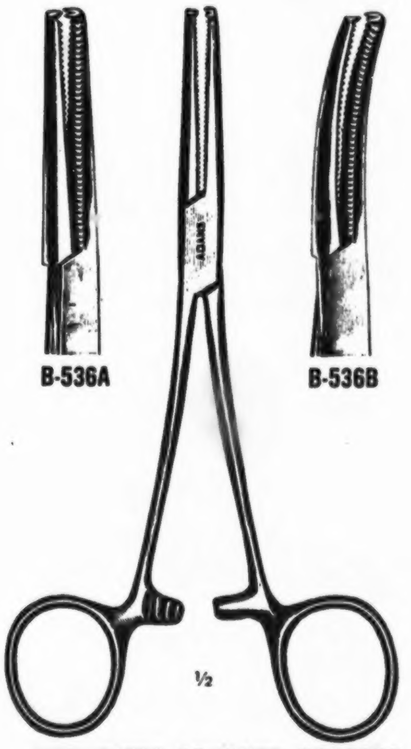
CRILE FORCEPS
BOX LOCK, 5½"



B-525/SS
PEAN FORCEPS
5½" STAINLESS STEEL

5½" ROEDER TOWEL CLAMP FORCEPS



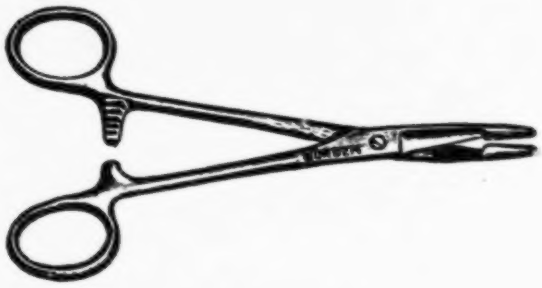


ROCHESTER-OCHSNER FORCEPS
Stainless Steel, Box Lock

Surgical Instruments and Terminology
(Information Sheet continued)

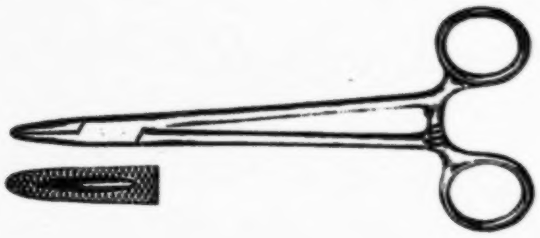
Olsen-Hegar Needle Holder

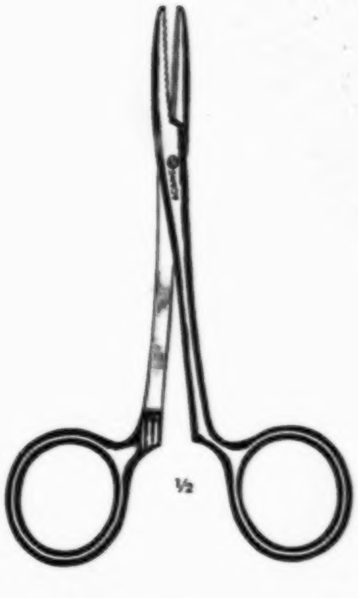
Combination needle holder and scissors for cutting suture.



Mayo Needle Holder

Grooved jaw, box-lock, sturdily constructed needle holder, 7". Stainless.

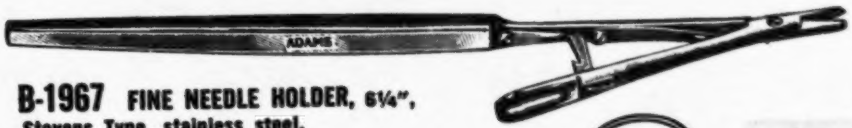




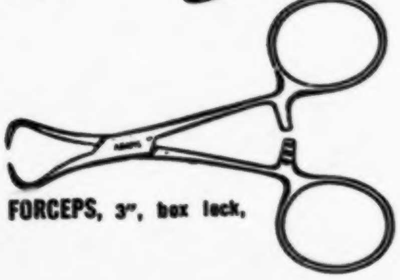
B-505

JONES FORCEPS
FLAT SHANK, 5", CHROME PLATED

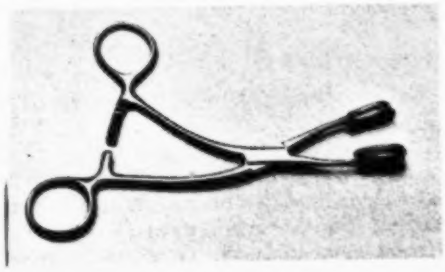
NEEDLE HOLDERS AND TOWEL FORCEPS



B-1967 **FINE NEEDLE HOLDER, 6¼",** **Stevens Type, stainless steel.**



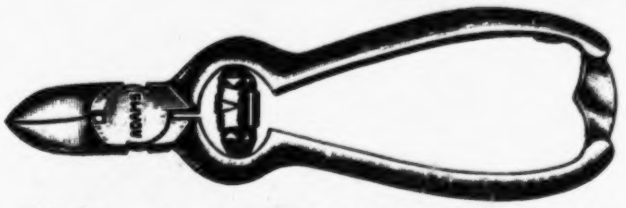
B-751 **BACKHAUS TOWEL FORCEPS, 3", box lock, stainless steel** . ...



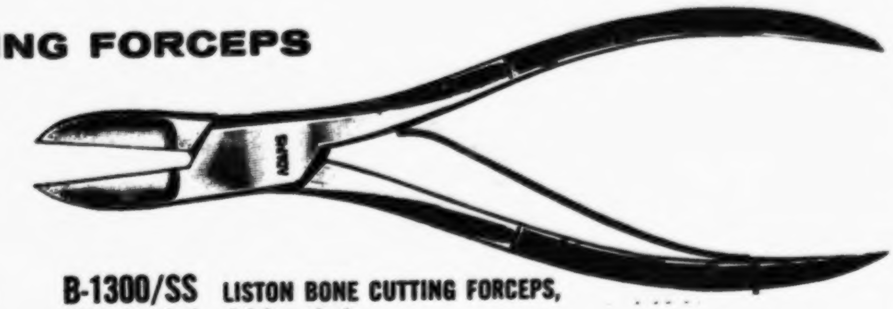
Young Tongue-Holding Forceps

Equipped with soft rubber jaw pads which have cross-serrated surfaces. Box lock insures uniform head alignment. Strong ratchet lock. Curved handles. Stainless steel. 6½" long.

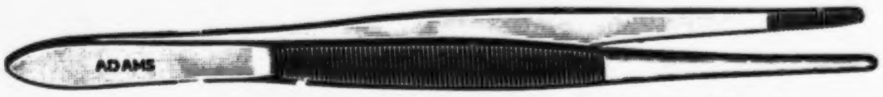
BONE CUTTING FORCEPS



B-1304 **SMALL BONE CUTTING FORCEPS, 5¼", screw lock, coil spring, chrome plated**.



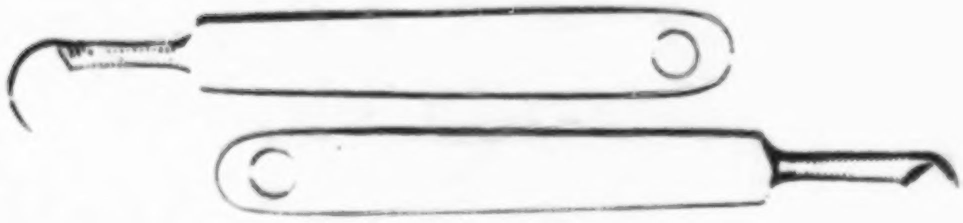
B-1300/SS **LISTON BONE CUTTING FORCEPS, 7½", box lock, stainless steel**.



THUMB FORCEPS **Finely serrated tips and handle.**

4½"
5½"

Short Shank Castrating Knives



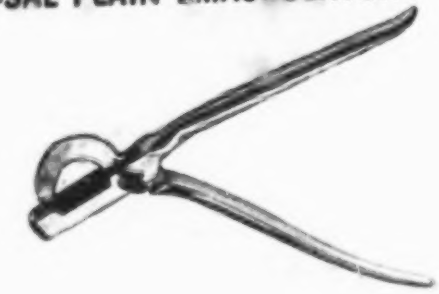
Hook Blade

Overall length 5¼". All stainless steel.
Hole in handle for embryotomy use.

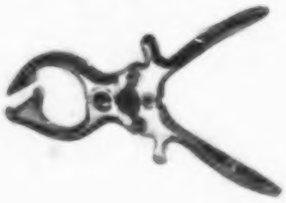
Hoe Blade

Overall length 5¼". All stainless steel.
Hole in handle for embryotomy use.

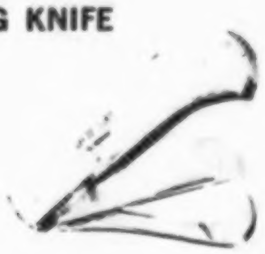
JEN-SAL PLAIN EMASCULATOR



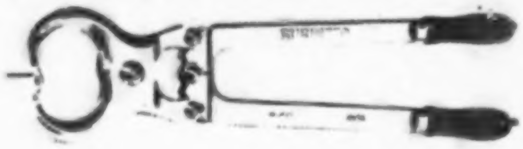
LAMB SIZE BURDIZZO FORCEPS



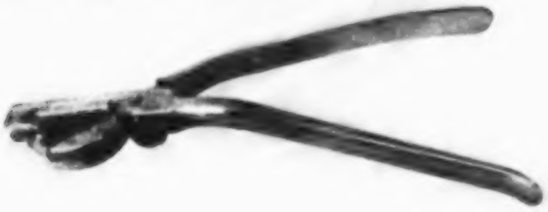
CASTRATING KNIFE



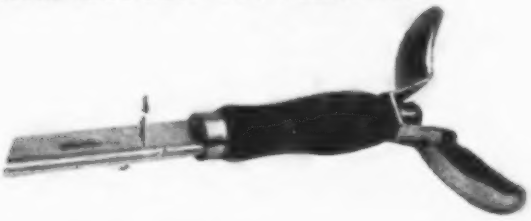
LONG HANDLE BURDIZZO FORCEPS



WHITE IMPROVED EMASCULATOR



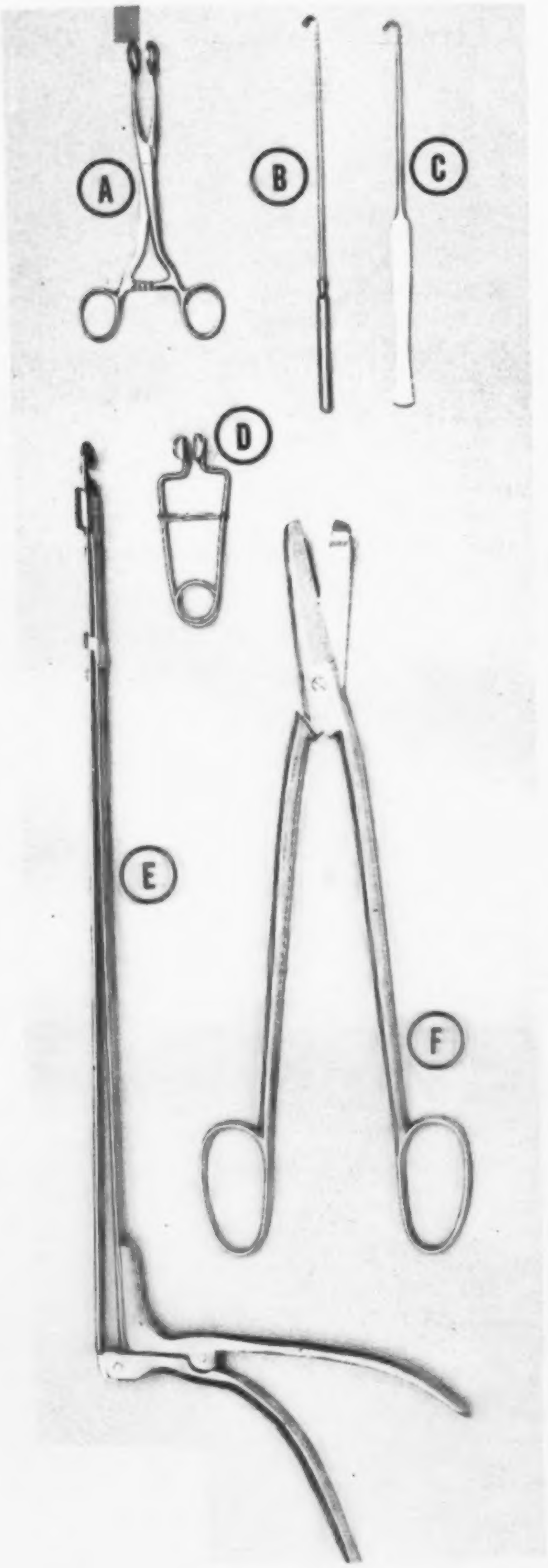
METAL CRUTCH ATTACHMENT



6433—Crutch attachment......

Fits 6423 Burdizzo Forceps.

Surgical Instruments and Terminology
(Information Sheet continued)



(A) Flynn's Ovariectomy Forceps

For grasping ovaries during oophorectomy procedures. Stainless steel, 6½" long.

(B) Covault's Ovariectomy Hook

For hooking over horn of uterus when bringing ovary to surface. Small handle; shank length 6". Stainless steel.

(C) Snook's Ovariectomy Hook

Permits raising uterus to surface without danger of picking up omentum or parts of peritoneum. Stainless steel, flat handle. Shank length 4".

(D) Spaying Spreader

For use as a retractor. Chrome plated. Length 4".

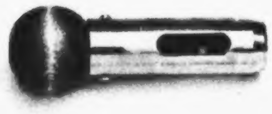
(E) Spaying Ecraseur

The grip-type (chrome plated) handles allow maximum manipulation of crushing head. Made with flat, stainless steel shanks and cutting heads constructed close together to avoid injury to vaginal walls. Strong and serviceable. Length 20".

(F) Spaying Shears

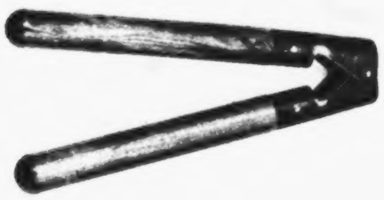
Made with special serrated blades, slightly curved and properly tempered. Strong, round shanks. Overall length 15½" with 3" cutting edges. Chrome plated.

DEHORNING



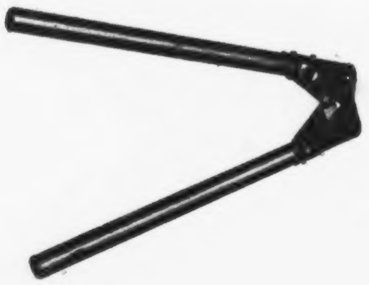
Tube Calf Dehorner

For gouging out horn bud on calves from 2 weeks to 3 months old. Steel tube, nickel-plated, 1″ dia., 3″ long. Keen, hard cutting edge, round wood handle. Two sharpened notches increase cutting efficiency.



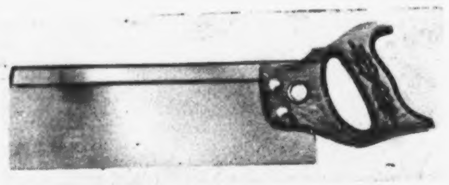
Barnes Dehorning Gouge

Simple construction. Cupped cutting blades of best-grade, finely honed steel. Hardwood handles. Lightweight. Length 13″.



Barnes Ranch Dehorner

Has larger cups than the gouge above. Durable, heavy duty. Extended tubular, metal handles. Length 15″.

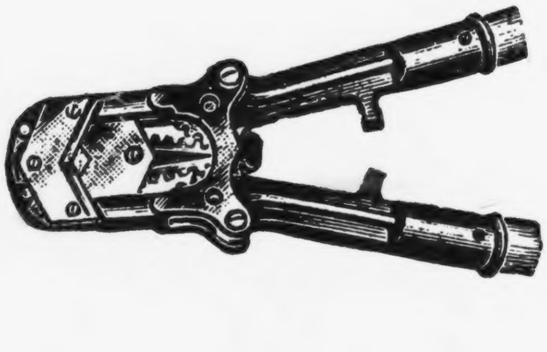


Dehorning Saw

Fine teeth. Wood handle. Blades 3¼″ x12″.

Keystone Dehorner

Tapered rack and handles with corresponding eccentric gears to give maximum cutting power at the beginning of the stroke. Blade expansion 3½″. Total length (with handles), 4 feet. Weighs 16 pounds.



INTRAVENOUS SETS

Gravity Intravenous Outfit

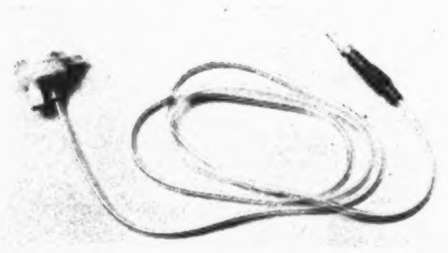
For intravenous solutions where gravity flow is employed. Rubber head fits over any type bottle neck. Small piece of rubber tubing on side of cap acts as air valve and admits air into bottle but prevents leakage of solution. 4' of rubber tubing with adapter connection and 15 ga. x 1½" needle included.

Improved Intravenous Outfit

Made with molded rib inside head. This feature admits air into bottle and eliminates clogged and sticking valves. Latex rubber heads fits all standard neck bottles. 4' of rubber tubing with adapter connection and 15 ga. x 1" needle included.

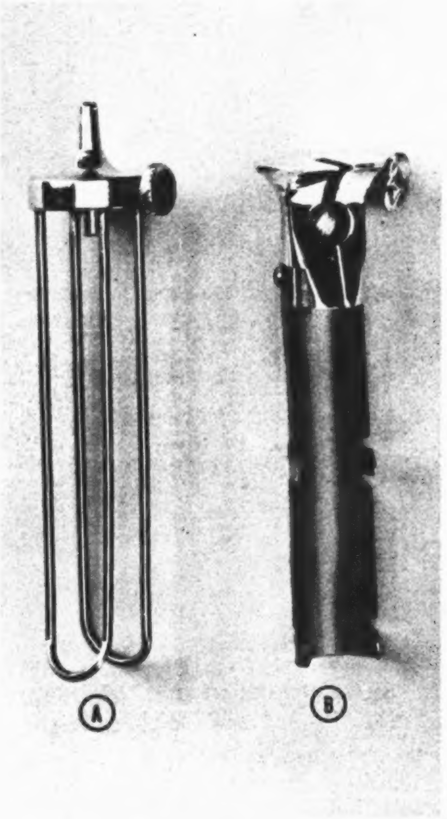
Havloset
Intravenous Injection Set

With air-inletting filter. Sterile, nonpyrogenic, ready for use. Fits all threaded 28 mm. solution bottles. Consists of 4½' of plastic tubing, plastic screw cap, plastic needle adapter and rubber injection bulb. Needle not included.



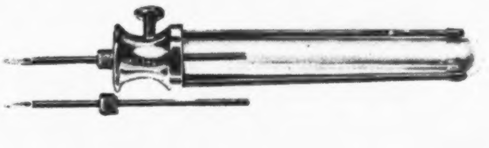
Stader Intravenous Set

Consists of 13 ga. x 2" needle fitted with special catheter and stylette with tubing connection and side openings. Rounded end catheter extension through needle minimizes injury to vein and assures easy administration of liquids into blood stream.

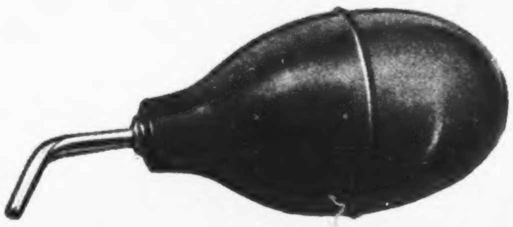


Blood Vial Holders

JEN-SAL BLEEDING VIAL HOLDER



BULB NEEDLE CLEANER

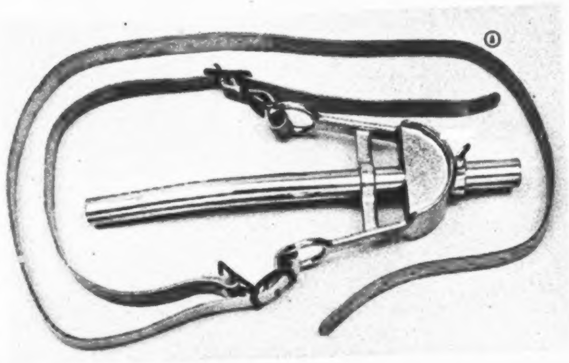


Surgical Instruments and Terminology
(Information Sheet continued)

Injection Pumps

DeLuxe Model Pump
With Neoprene O Ring Top Seal

All parts made of heavy gauge brass. Barrel is 1⅛" dia. seamless brass tubing; bronze check valves; specially-treated packings to withstand harmful fluids. Special "O" ring top seal designed to give life-time service with proper handling, and requires no adjusting. Easily taken apart for cleaning. Tapered hose connection fits various size tubes. Highly polished and chrome plated. Length 16".



Emont Stomach Tube Speculum

Practical for introducing stomach tube, drenching or administering capsules to large animals. Metal tube is 18" long x 1" outside diameter; adjustable for moving forward or backward as required. Adjustable leather head straps.

Oil Resistant Stomach Tube

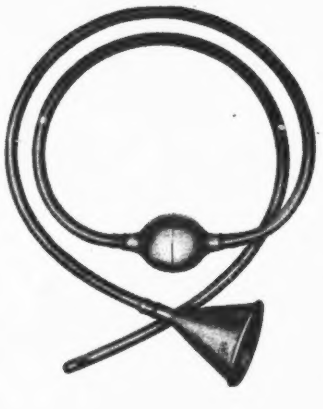
Black synthetic rubber with smooth, glossy surface which resists oils and other rubber solvents. Has one beveled end. Requires no lubrication for easy passing. Durable; will outlast ordinary rubber under normal conditions.

Frick's Stomach Tube Guide

Place directly in the center of mouth, insert stomach tube. Protects tube without danger of fouling or being chewed. Chrome-plated steel, smooth inside and out, rounded ends.

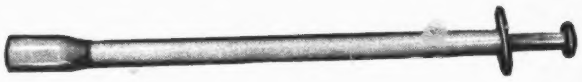
Canine Stomach Tube

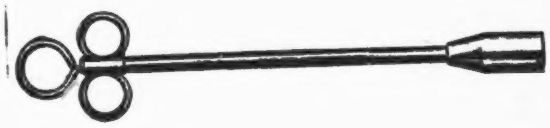
Glass molded rubber with attached funnel and pressure bulb. Unit has 30" tubing below bulb, 12" of tubing between bulb and funnel. Funnel capacity 3 oz. Tubing end has both side and end openings.

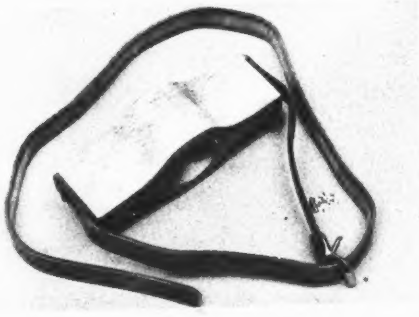


2-OUNCE BULB SYRINGE

PLASTIC CALF-SIZE BALLING GUN







Stomach Tube Speculum

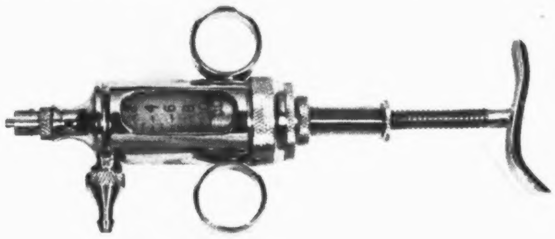
Made of hardwood with heavy, adjustable leather straps. Opening is 2" in diameter.

Bolette Balling Gun

Three ring, 13" long. Spring in head.

Norden Record Automatic Syringe

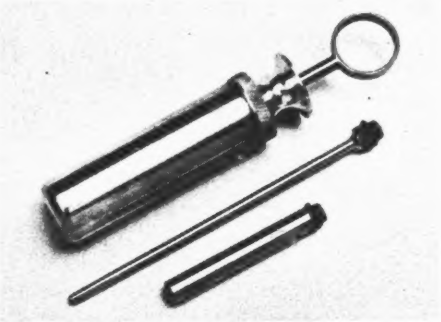
Graduated glass barrel, precision workmanship.



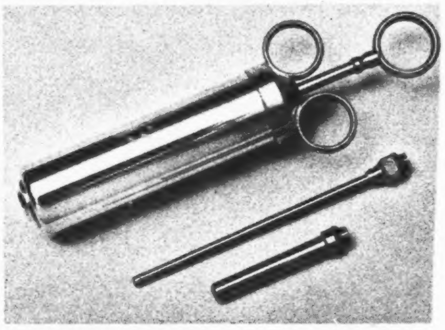
Dose Syringes with Leather Plunger

2 oz., 4 oz., 6 oz.

Made of heavy gauge, durable brass with seamless barrel. Spool finger grip and large rings. Piston rods plainly marked. Highest grade leather plunger. Extra heavy, duro-nickel plated. Choice of spool top or three-ring styles. Pipes are *not* included with syringes. Order them from selection below.



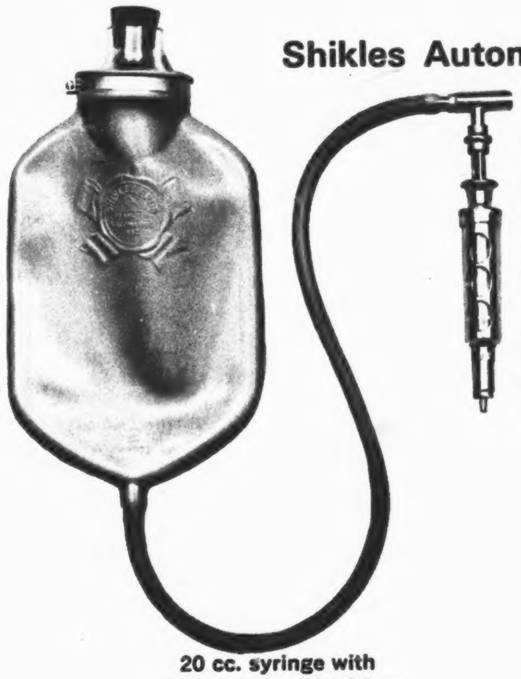
HL 0701 00—Spool Top, 2 oz.



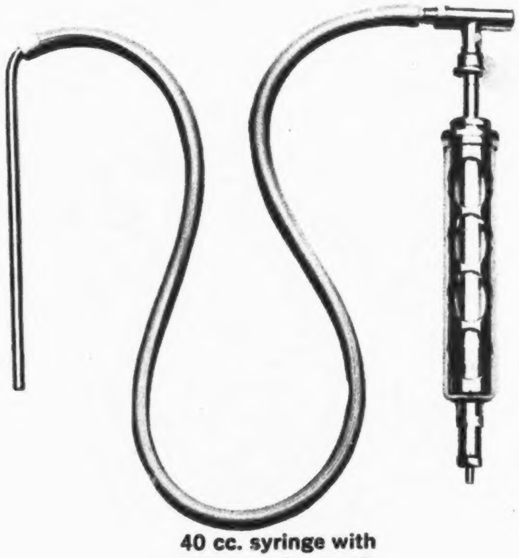
Shikles Automatic Vaccinating Outfits

20 cc.

The 20 cc. outfit is a compact, 2-quart capacity automatic vaccinating unit providing maximum speed with minimum effort. An outstanding feature is a graduated sleeve and dosage regulator nut. Sleeve is threaded and marked for dosages of 1 through 20 cc. Regulator nut can be moved easily to desired dosage, providing automatic stop. Syringe is available with either rubber bag and tubing; or with tubing and cannula.

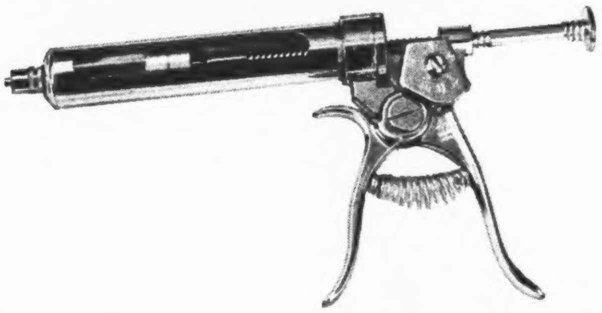


20 cc. syringe with rubber bag and tubing

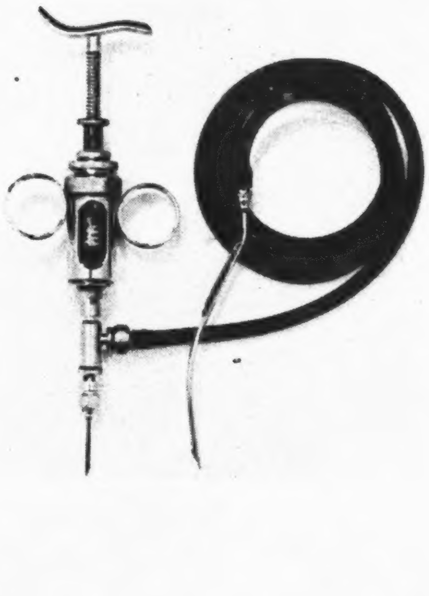


40 cc. syringe with tubing and cannula

40 CC. AUTOMATIC REPEAT SYRINGE WITH METAL PLUNGER



5 CC. AUTOMATIC VACCINATING OUTFIT

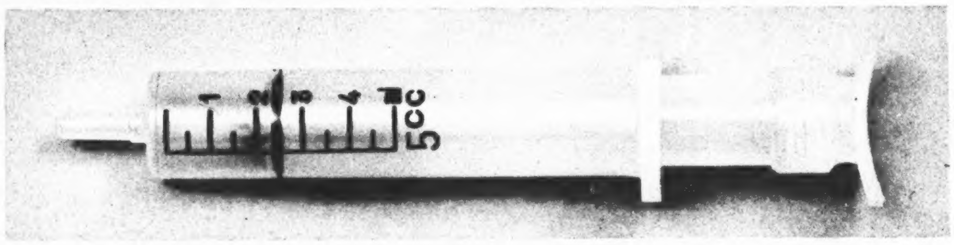


Nylon Syringes

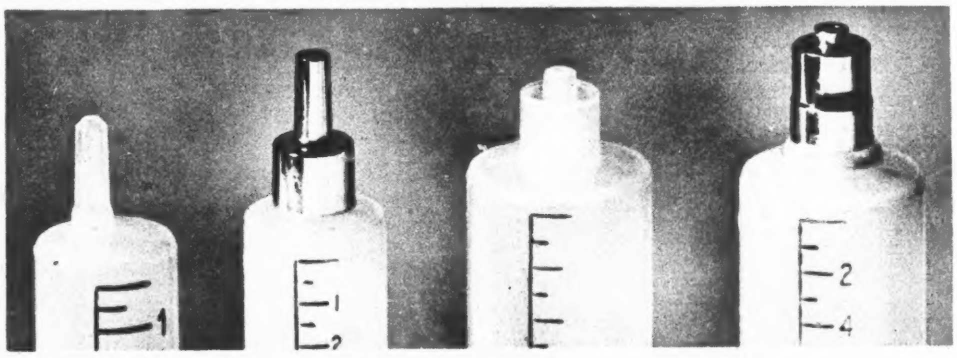
2 cc. 5 cc. 10 cc. 20 cc. 50 cc.

Unbreakable syringes with leak-proof nozzles and pistons which never stick in barrel. Pistons and barrels are interchangeable. Permanent, legible graduations. Resistant to water, oil and alcoholic solutions. Choice of five tips: nylon center, nylon eccentric, metal slip, metal Luer Lock, and nylon Luer Lock.

"O" rings (washer at base of plunger) may need replacement after long wear.



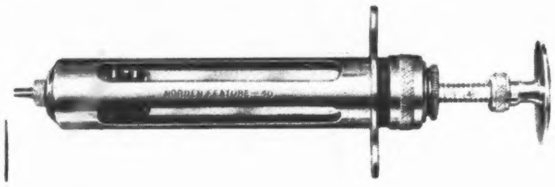
center tip



nylon eccentric　metal slip　nylon Luer lock　metal Luer lock

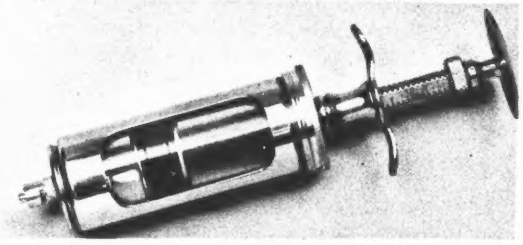
Norden Feature Syringe

All Norden Feature Syringes are equipped with a two-piece head cap which permits easy removal of the plunger without disturbing the glass barrel, end washers and cap. All metal parts are heavily chrome-plated brass.



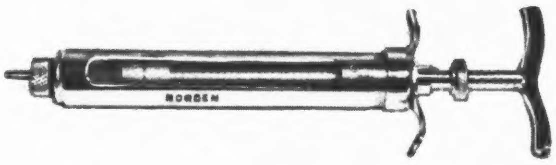
50 cc. 60 cc.

Short style serum syringes. Plainly marked with 1 cc. graduations. Medium weight barrels. Rubber plunger, 1-piece top cap. Chrome plated.



Norden Record Syringe, Chrome Plated

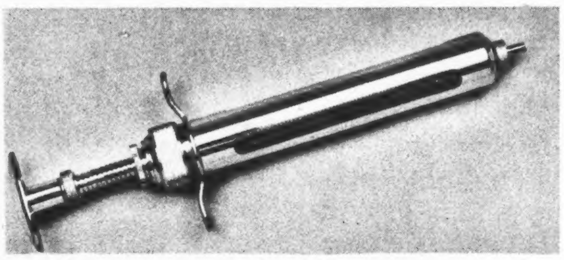
The 10 cc syringe has 1 cc graduations and removable large slip adapter. Individually fitted plungers.



Barrels with Metal Plungers and End Washers

Long Style Syringes, Universal, Chrome Plated

20 cc. 40 cc. 50 cc.



Smooth working, accurate fittings, double-threaded dosage nut. Large knurled, 2-piece top cap with firm piston bearing in cap. Plain markings on piston, 1 cc. graduations. Heavy, resistant glass barrel. Double rubber plunger.

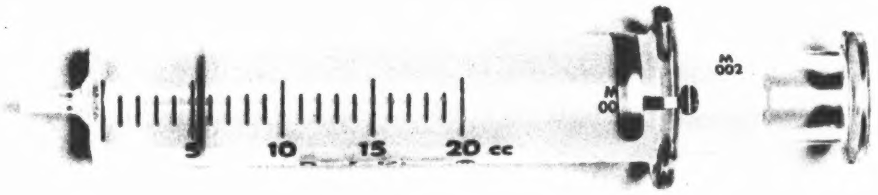
Surgical Instruments and Terminology
(Information Sheet continued)

Glass Syringes, Made in U. S. A.

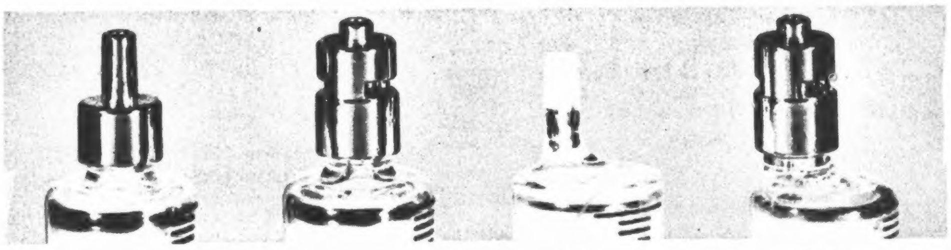
2 cc. 5 cc. 10 cc. 20 cc. 30 cc. 50 cc.

Heat-resistant glass, individually fitted and tested. Precision grinding of barrel and plunger insure smooth operation. Fitted with plunger retainer clips.

Choice of 5 tips: glass center, glass eccentric, metal Luer Lock, metal slip, and metal eccentric Luer Lock.



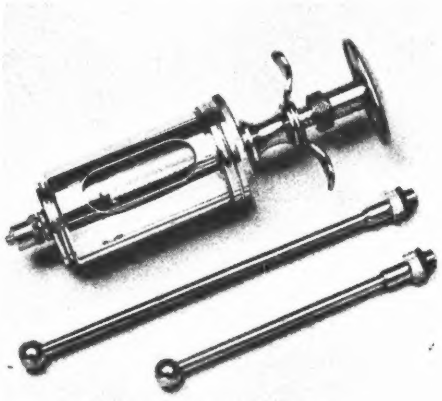
glass center tip



metal slip   metal Luer lock   glass eccentric   metal eccentric Luer lock

Stubby Super Dose Syringe

40 cc.

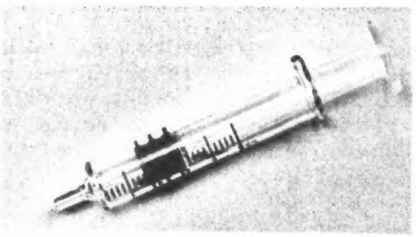


Highly polished, chrome plated. Equipped with rubber plunger and standard Luer Lock adapter.

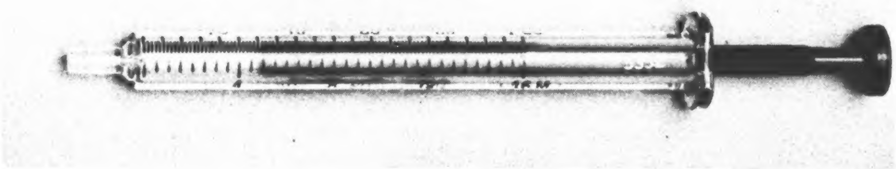
Disposable Syringes

2 cc. 5 cc. 10 cc.

Sterile syringes. Use once and discard. Plain markings, 1/10 cc. graduations, rubber plunger, plain slip adapter.



Tuberculin Syringe

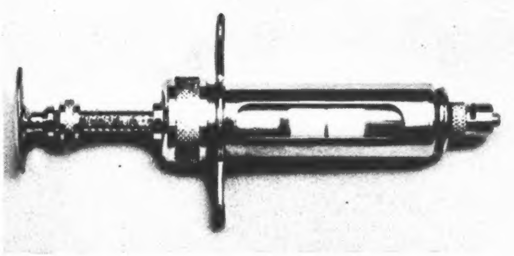


Made in U.S.A.

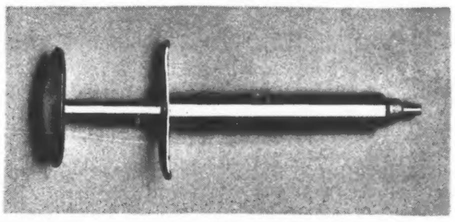
1 cc. glass syringe, long style, with blue plunger. Graduated in 1/100 cc. With center tip.

Imperial Viking Syringes

5, 10, 20, 25 and 40 cc.



Features molded ceramic plunger with same coefficient of expansion as the heat-resistant glass barrel, thus facilitating sterilization of unit without dismantling. Eliminates danger of breakage. Positively accurate at all times. Chrome plated.



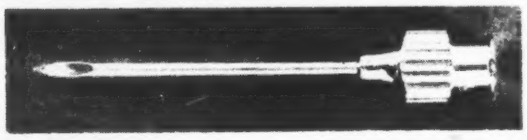
Glass Syringe Opener

Loosens plunger in glass syringes that stick from lack of thorough rinsing. Special water pressure instrument fits over adapter to supply hydraulic force into base to loosen and release adhered piston. Features a female Luer Lock tip which permits securely locking tips of Luer Lock syringes to it. Chrome plated.

Surgical Instruments and Terminology
(Information Sheet continued)

NEEDLES AND TROCARS

VEIN PUNCTURING NEEDLE

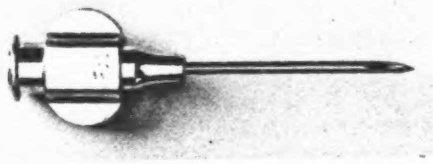


EXTRA LONG NEEDLE

Stainless Steel

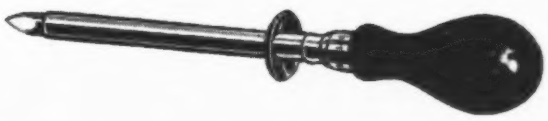
Winged Hub Needles

Stainless steel. Fit Luer lock or Luer slip adapters. The extra large hub affords firm grip and the sharp point penetrates skin with ease. Available in all gauges for any purpose. Gauge is stamped on hub. Order by number.



Actual Size 18 x 1

CATTLE TROCAR



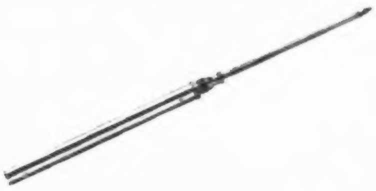
Actual Size

Spinal Puncture Needle

16 ga. x 2"; fits large slip adapter.

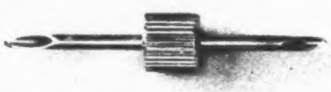
For epidural anesthesia in horses and cattle. Stainless steel, short bevel.

KENTUCKY HORSE TROCAR



Transfer Needle

Stainless steel cannula with round hub. Point on each end. For reconstituting lyophilized products.

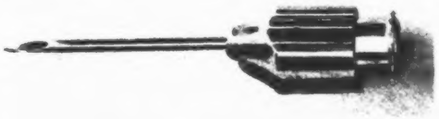


Actual Size

SWINE BLEEDING NEEDLE

Knurl Hub Needles

Stainless steel with flat, knurl hub. Fit Luer lock or Luer slip adapters. Gauge is stamped on hub. Order by number.

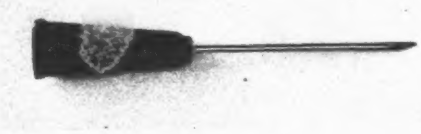


Actual Size 18 x 1

Actual Size 18 x 1"

Disposable Needles, Sterile

Gas sterilized. Pyrogen tested. Super sharp lancet points. Stainless steel cannula protected by plastic sheath. Chrome plated hub fits Luer lock or Luer slip adapter. Gauge stamped on each needle. Individually sealed in clear, polyethylene, heat-sealed wrapper.



Actual Size

B-D Disposable Needle

22 x 1"

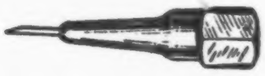
Sterility and pyrogen tested. Stainless steel cannula protected by plastic sheath. Plastic hub fits Luer lock or Luer slip adapter. Individually packaged.

Transfer Needle

Double ended needle for restoring desiccated products.

Intradermal Needles

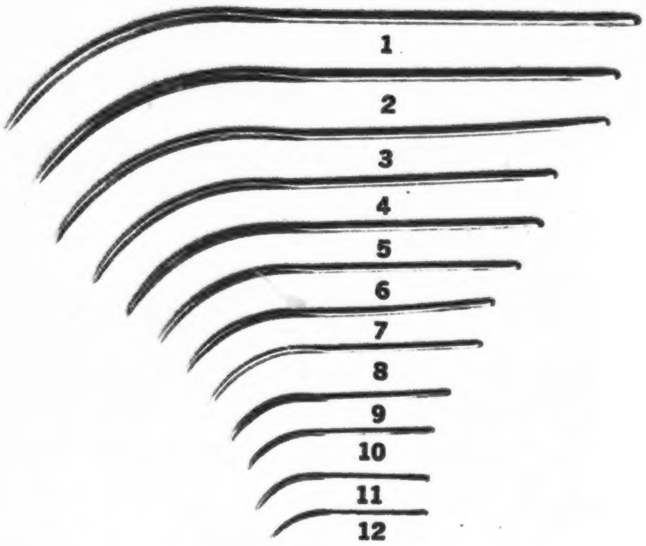
Standard screw hub.



SUTURES AND NEEDLES

Stainless Steel Suture Needles

shown actual size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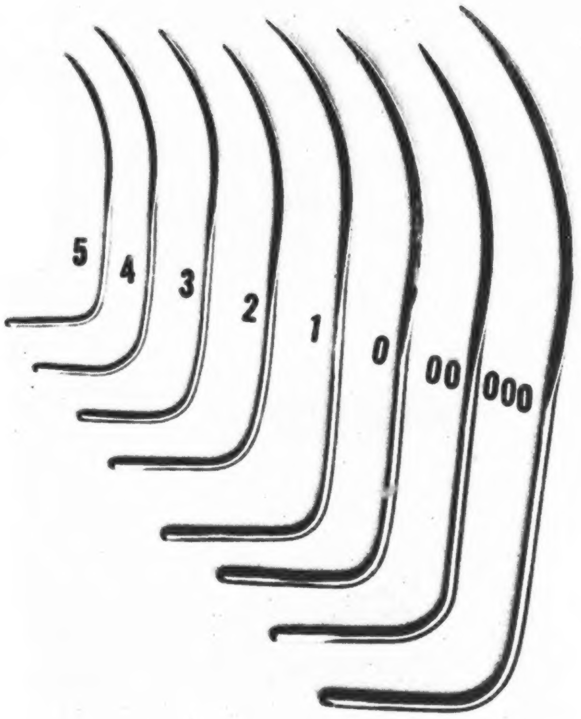
Half Curved Needles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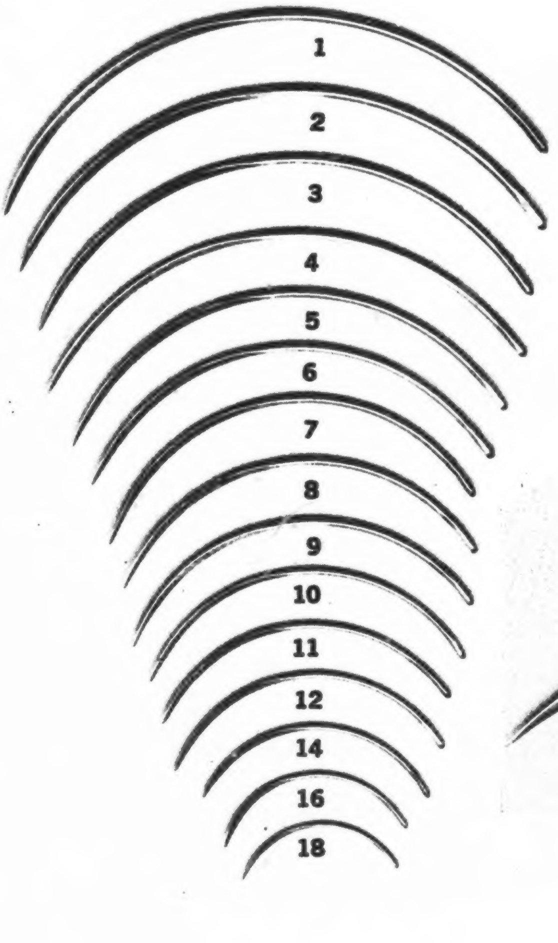
Loopuyt Needles

Boat style, large eye.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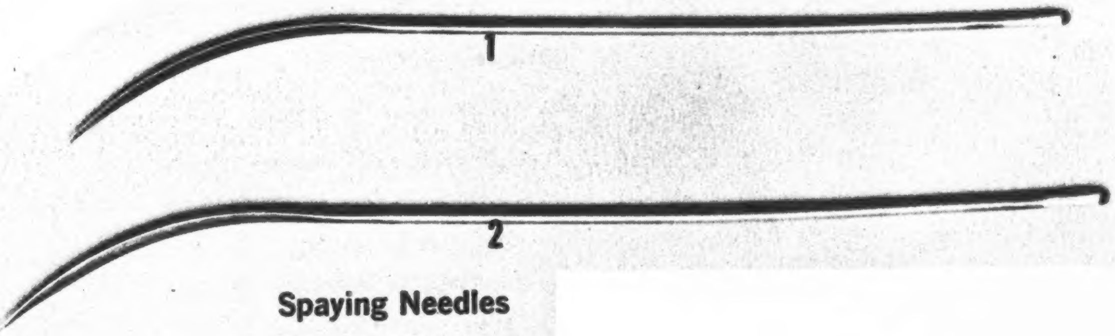
Full Curved Needles



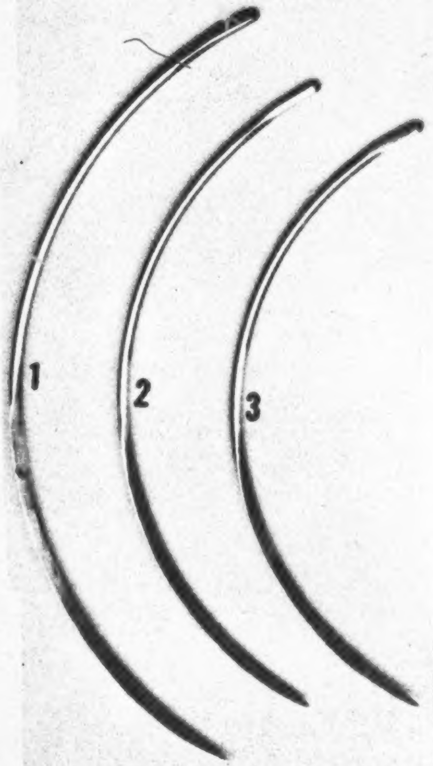
Spaying Needles

Half curved, large eye.

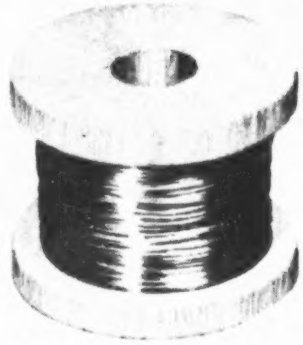
Surgical Instruments and Terminology
(Information Sheet continued)

Stainless Steel Suture Needles

shown actual size



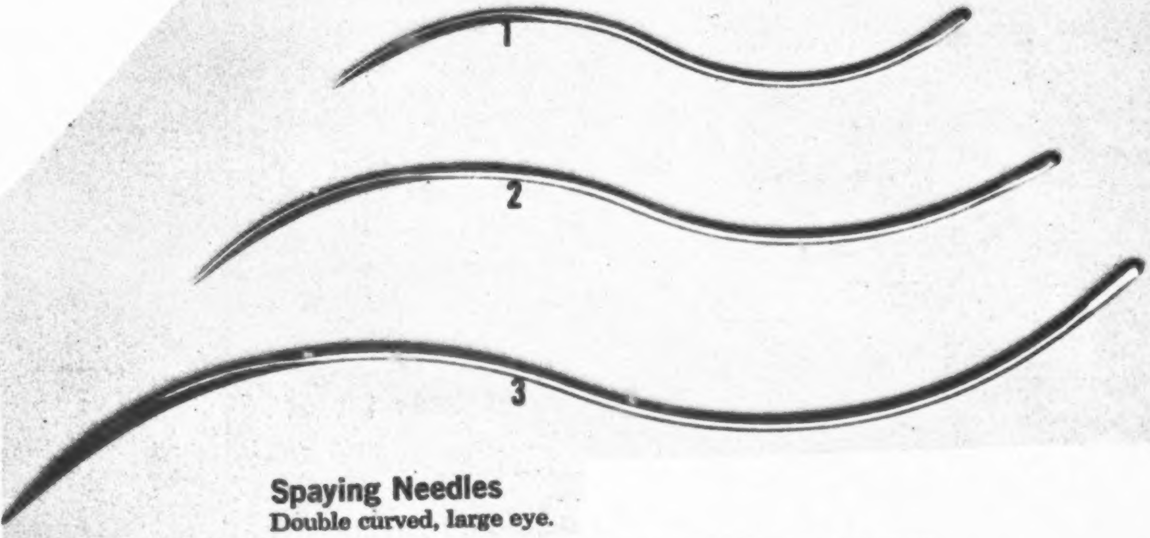
STAINLESS STEEL SUTURE WIRE



Heavy Suture Needles

Large eye, ⅜" curved cutting edge.

shown actual size



Spaying Needles

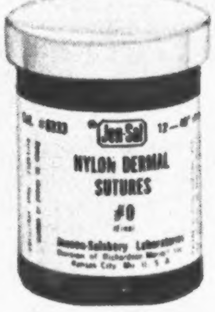
Double curved, large eye.

Hernia Needle HL 1434 00—5⅛" (ea)

Straight, large eye. HL 1434 00—5⅛" (6)

NYLON DERMAL SUTURES DRY PACKAGE

NYLON DERMAL SUTURES JAR PACKAGE IN SOLUTION


Jen-Sal
NYLON DERMAL
SUTURES
#0
Jensen-Salsbury Laboratories

Jen-Sal
NYLON DERMAL
SUTURE
Size 0 — 25 yd.
Cat. #8328
Jensen-Salsbury Laboratories

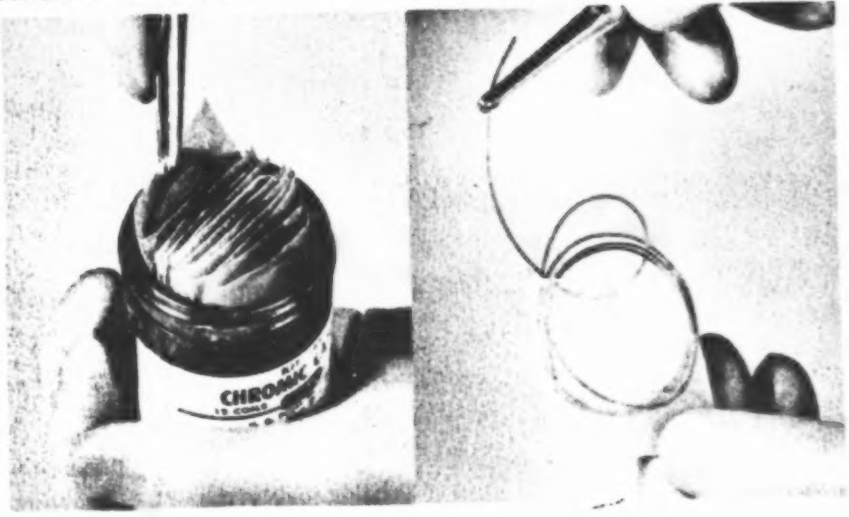
Surgical Instruments and Terminology
(Information Sheet continued)

SUPRAMID SYNTHETIC SUTURE

A nonabsorable suture composed of fine, twisted strands covered by a smooth, seamless casing. Protein-like structure eliminates undesirable tissue reaction and suppuration. Sterilize by boiling, autoclaving (120° C.), or storing in 70% alcohol. Optional plastic dispenser accommodates one ball of each size suture with an end of each pulled through the rubber stopper for easy access. Not recommended as a substitute for catgut in deep tissues. Supplied in 50 foot balls.

SOFT BRAID SUTURE TAPE

CHROMIC CATGUT SUTURES



LINSUTE

—Linsute, catgut size 4, jar.............

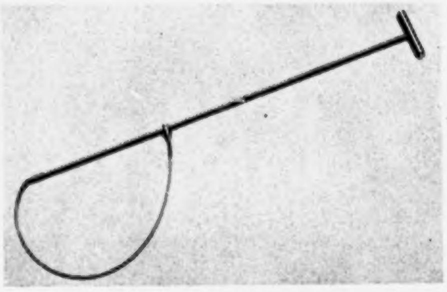
Vetafil

Synthetic Surgical Suture

Contains strands of perlon enclosed in smooth cover forming extremely pliable and strong suture. Although nonabsorbable, it causes no stitch irritation. Can be sterilized by boiling in water or by storing in QUA disinfectant or isopropyl alcohol (70%).

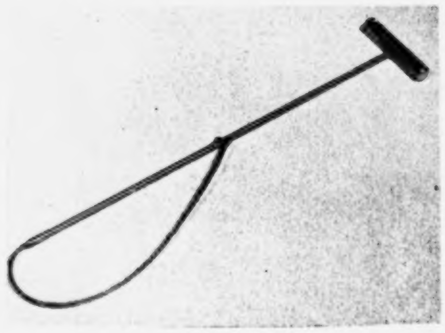
Supplied in balls, 164 ft. long in medium, heavy, extra heavy, or special heavy, in transparent plastic container.

OBSTETRICS



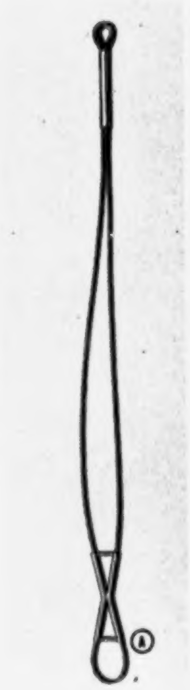
Western Obstetrical Snare

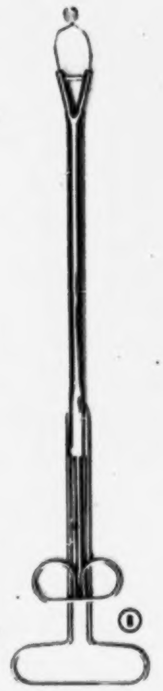
Stainless steel cable can be directed into any position required. Chrome-plated, flexible shank is rigid enough to be pushed from without, yet small enough to be introduced with other instruments or with arm. Loop, when introduced with hand, may be adjusted in size by manipulation from handle—forms maximum 7" loop. Snare withstands manual tension but should not be subjected to block and tackle strain. Overall length 35".



Swine Obstetrical Snare

Flexible cable may be directed into any position required with spring steel shank extension that slips over head, feet or jaw of pigs and iambs. Chrome plated. Overall length 18". Forms maximum 5" loop.





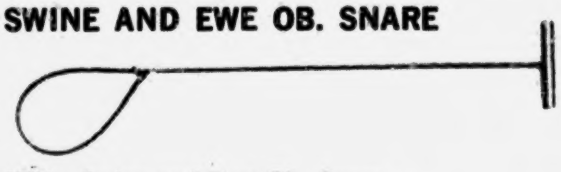
(A) Kalf Saver Snare

Bovine fetal snare for forced extraction of calves. Easily adjusted and provides safe, secure hold with least chance of injury to calf. Sliding device locks automatically and cannot tighten down. Loop in end for attaching OB handle or calf puller. Stainless steel. Length 34½".

(B) Severus Pig Forceps

Designed for easy snaring of fetuses and removal of pigs under conditions of dystocia in the sow. Special tempered wire is withdrawn by action of finger grip on slide. Chrome plated shank. Length 19".

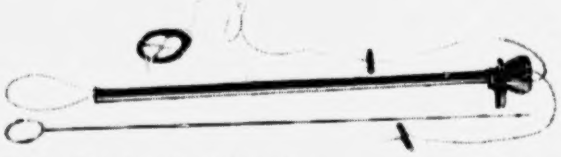
SWINE AND EWE OB. SNARE



6774—Swine and Ewe Ob. Snare....

The loop end is a smooth, stainless steel cable, firmly welded to a semi-rigid chrome-plated rod 18" long. The loop stays open while placing over head, feet or jaw of lambs or pigs.

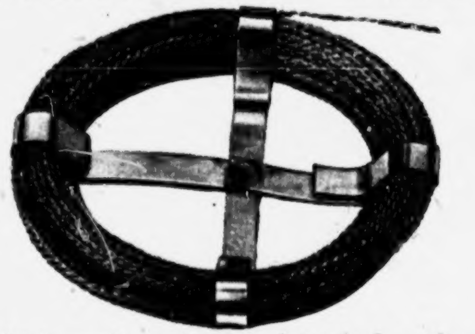
SINGLE TUBE FETATOME



6889—Single tube fetatome..................

Jointed 32" chrome plated tube with rounded head and two openings for saw wire. Adjustable handle. Includes saw wire handles, 30' saw wire and threading needle.

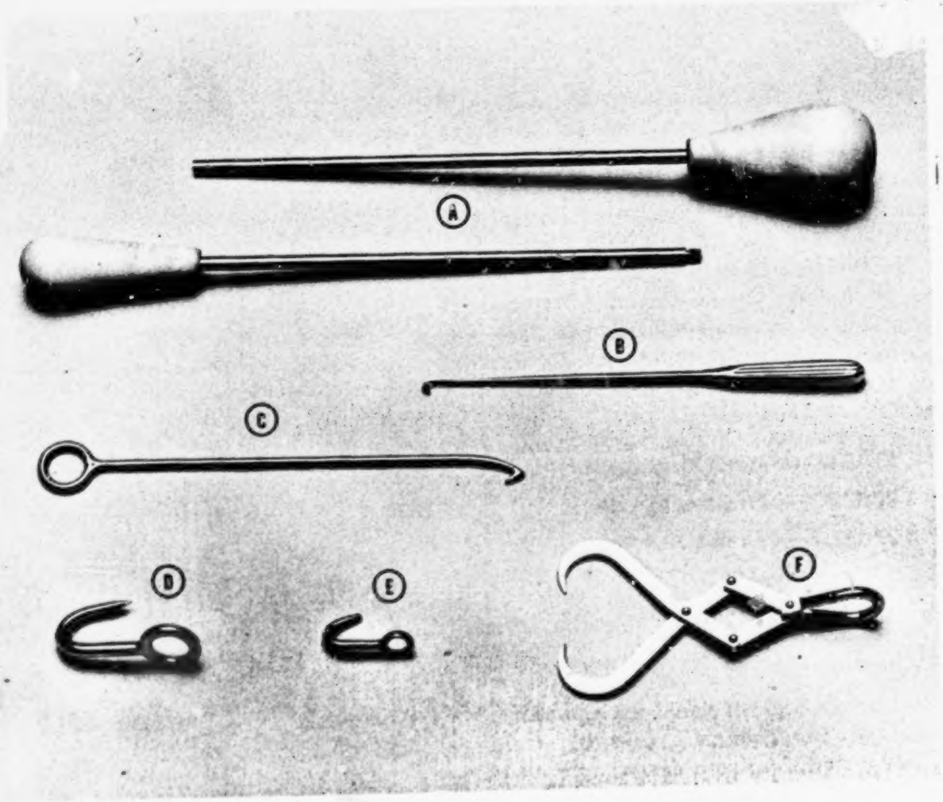
OBSTETRICAL SAW WIRE & HANDLES



A high quality wire for obstetrical work or dehorning. Supplied in coils 30 feet long.

3

Surgical Instruments and Terminology
(Information Sheet continued)



(A) Uterus Replacer

Two sizes, pear-shaped wood ends on jointed, steel-plated rod. For replacing prolapsed uterus in cow, mare, ewe or sow. Length 36".

(B) Canine Obstetrical Hook

Hollow handle, chrome plated. Length 12".

(C) Swine Obstetrical Hook

Tempered steel, chrome plated. Length 14½". Ring handle.

(D) OB Hook, Standard

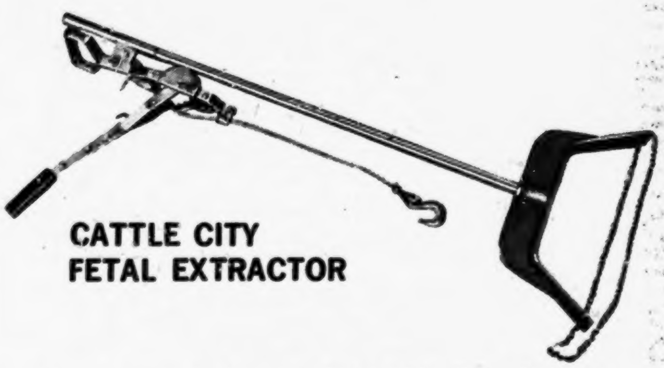
Chrome plated, 3½" long. Choice of sharp or blunt points.

(E) OB Hook, Small

Chrome plated, 2½" long. Choice of sharp or blunt points.

(F) Obstetrical Tongs

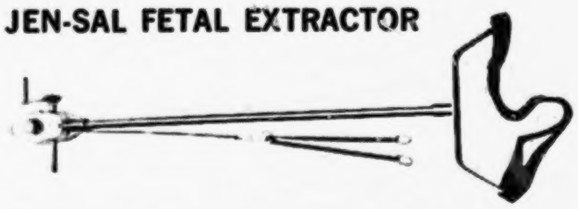
Chrome plated, 8½" long, two sharp points. Also used as a sky hook.



CATTLE CITY FETAL EXTRACTOR

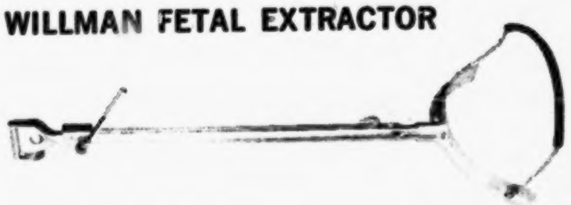
Sturdy gear and worm hoist with 5 ft. airplane cable tested at 1,500 lb. Two-piece steel shaft; cast aluminum breechen. In light canvas case.

JEN-SAL FETAL EXTRACTOR



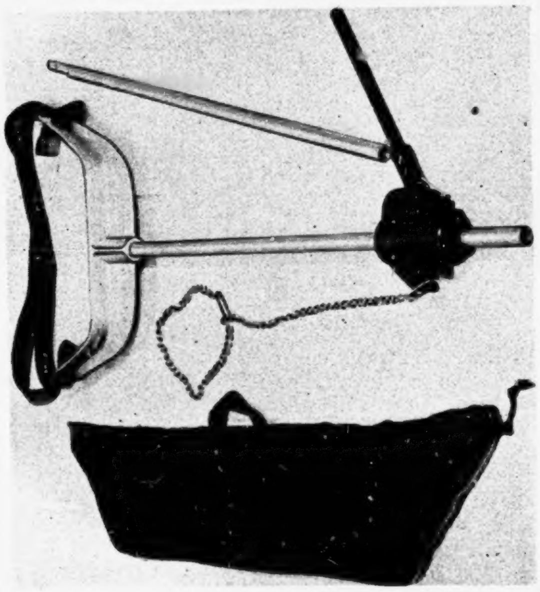
Insulated, instantaneous-release handle and lever; adjustable length; variable speed. No messy strap, no buckle to rust. 54'' ob. chain supports breechen. Rod and tube withstand over 1,000 lb. pressure. Heat-treated chrome vanadium steel rod is 38'' x ¾''. 36'' tube is colddrawn, seamless, chrome plated steel. Supplied in zippered canvas case.

WILLMAN FETAL EXTRACTOR



Designed for one-man operation. Only 15 lb.; dismantles into two, easily carried pieces. A continuous roller chain gives straight, even pull; reverses quickly for a second pull. Hook on roller chain accommodates two 60'' ob. chains. Trigger in handle release tension quickly; ratchet lock permits slow or rapid extraction. Shaft and breechen of sturdy aluminum alloy. Removable, reversible operating handle is a plated steel ratchet wrench.

Surgical Instruments and Terminology
(Information Sheet continued)



Frank Fetal Extractor

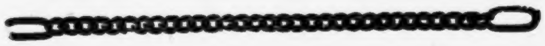
Calf puller proven dependable by extensive field use. Breech spanner has adjustable rump straps which hold securely beneath cow's pin bones.

Friction jack applies smooth steady traction on fetus and can be re-adjusted if longer pull is necessary. Leg and head chains attach to jack housing. Chrome plated steel shaft in two sections for convenient carrying. Complete in carrying case.

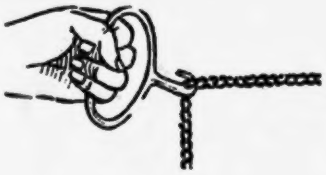
Moore's Obstetrical Chains

Nickel-plated steel, electrically welded, with loops at each end. Sanitary, convenient to carry; strong, and better than ropes.

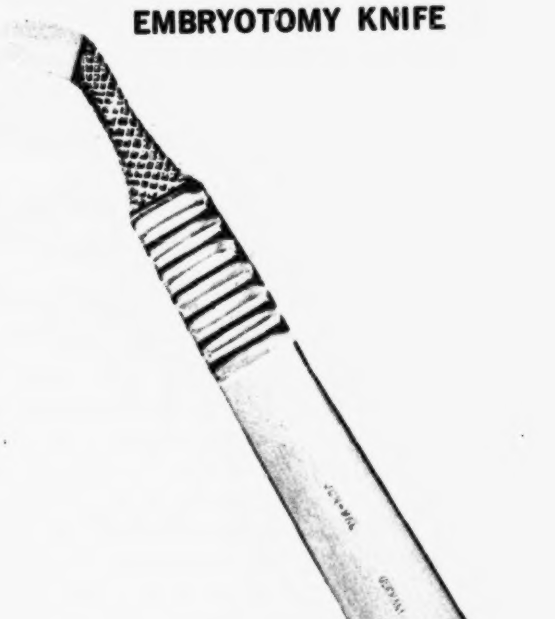
NL 901—OB chain, 30"
NL 902—OB chain, 60"



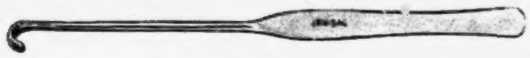
Moore's OB Chain Handles



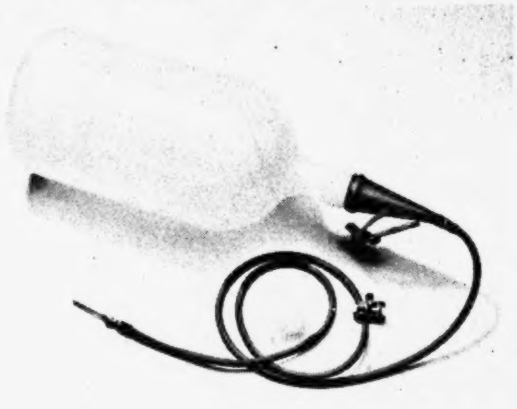
EMBRYOTOMY KNIFE



SNOOK OVARIECTOMY HOOK



BLOOD TRANSFUSION OUTFIT



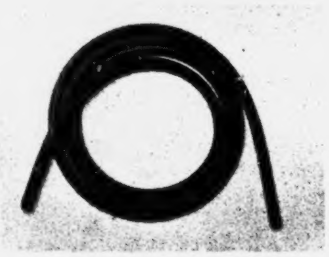
Surgical Instruments and Terminology
(Information Sheet continued)

CATHETERS

Equine Catheter

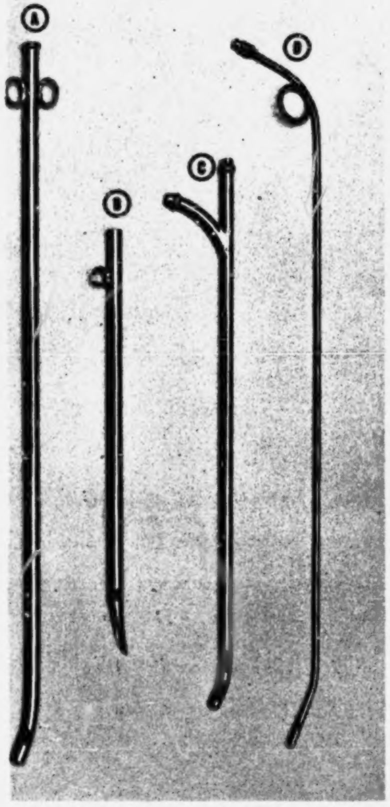
Soft rubber, glass molded. Length 60″.

HL 2100 00—Horse Size
HL 2101 00—Colt Size



Sterility Catheter

Soft rubber, glass molded. For irrigation of uterus and sheath of male. Length 7 ft.



(A) Mare Catheter

Chrome plated brass tubing, jointed. Length 19½″, diameter ⅜″

(B) Cow Catheter

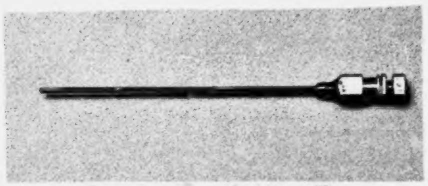
Stiff metal, chrome plated. Length 12″. Practical for use in large cows; easy insertion into urethral orifice without damage to mucosa.

(C) Uterine Catheter

For large animal use. Return flow catheter with slotted openings and nipple end tubing connection. Length 15½″, diameter ¼″.

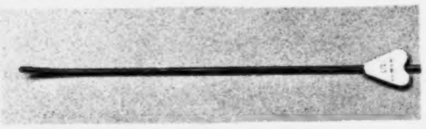
(D) Uterine Catheter

Brass, chrome plated. Large slip adapter on end. Length 19″, diameter 5/32″. For large animals.



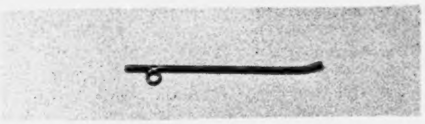
Tom Cat Urethral Needle

Stream of warm water jetted ahead of catheter makes possible advance into bladder provided concrement is not encountered. Special rounded end, rustless hypo needle with regular Luer connection to fit syringe for supplying pressure. 18 gauge, 3″ long.



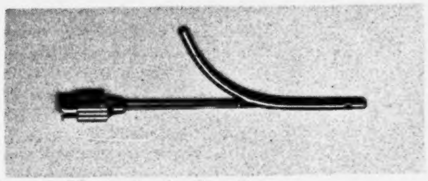
Canine Catheter

Stainless steel, 10 gauge, 10½″ long.



Bitch Catheter

Stainless steel, 10 gauge, 4½″ long.

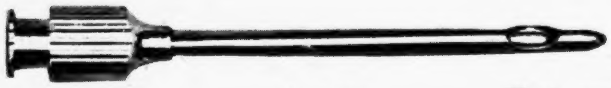


Anal Pouch Irrigator

Return flow irrigator for washing out anal pouch. Made with large slip needle connection for syringe attachment. Length 3″, chrome plated.

Surgical Instruments and Terminology
(Information Sheet continued)

TEAT AND UDDER SUPPLIES



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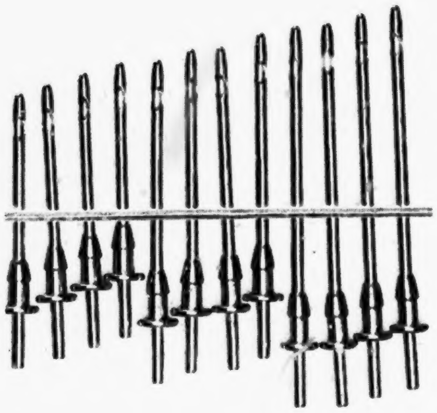
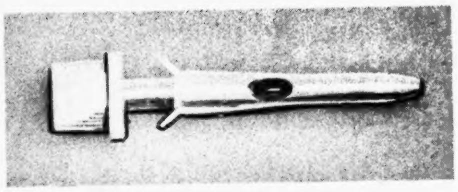
Mammary Infusion Tube

Teat cannula for infusing solutions into udder through teat canal with two side openings. Chrome plated, 2" long.



Self-Retaining Teat Tubes

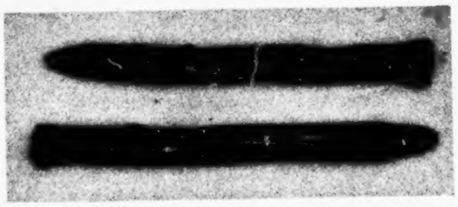
Chrome plated tubes, with two side openings. Supplied in boxes of one dozen tubes, same length or assorted. Lengths 2½", 3" and 3½".



actual size

Plastic Teat Tubes

For sore, injured, hard-to-milk teats. With nonirritating, flexible retaining fingers. Tube immobilizes teat orifice, aids healing of injured teats, won't aggravate wound. Sterilized, ready to use.

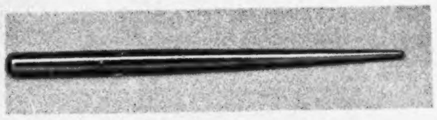


actual size

Alcorn Teat Tubes

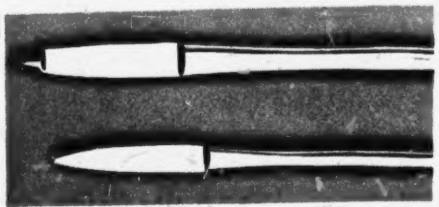
Plastic teat plug screwed into teat canal makes it self-retaining and permits constant dripping of milk through teat duct on outside of plug. May be left in place several days. Popular for injured teats when manual milking is painful and retards healing.

Surgical Instruments and Terminology
(Information Sheet continued)



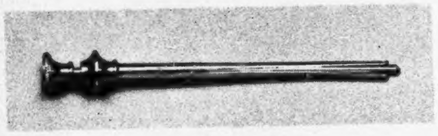
Teat Dilator, Tapered

All steel, chrome plated. Cone-shaped with round point. Length 7".



Lichty Teat Knives

Small, narrow blades, 5¼" overall length. Stainless steel. Choice of sharp or blunt points.

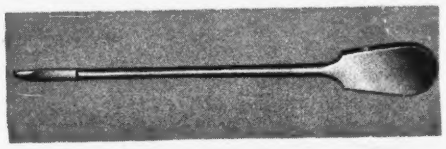


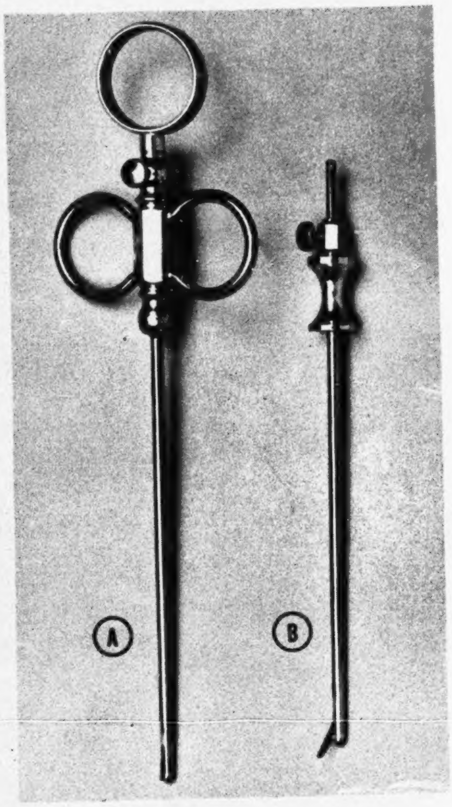
Teat Dilator, Expandable

Chrome plated. Sliding expander. Length of cannula 4"

Udall Teat Bistoury

Chrome plated. 4¾" long. Blunt end; blade shaped for cutting downward.



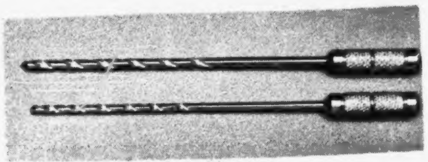


(A) Teat Slitter, 3-Ring

With regulating set screw and spring. Chrome plated, single blade. Length 7¾".

(B) Teat Slitter, Plain

Hinged knife blade, chrome plated, 6" long.



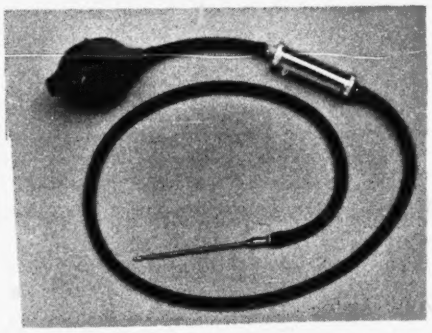
Spiral Teat Curettes

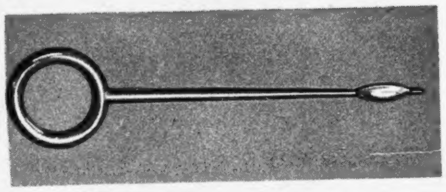
Especially designed for reaming out teat canal. Chrome plated.

–Small, 6¼" x ⅛" dia.
–Large, 6⅜" x 3/16" dia.

Emergency Milk Fever Outfit

Complete with pressure bulb, metal air cylinder, tubing and self-retaining milk tube.



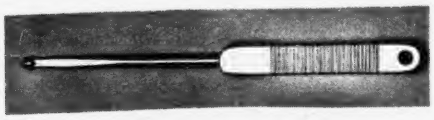


Stoll Teat Bistoury

With double-cutting blade for nicking teat sphincter. Chrome plated. Length 4½".

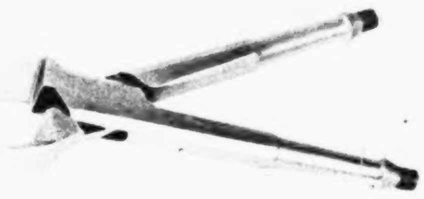
Cornell Teat Curette

Stainless steel, 6¾" long. With cup-like cutting edge and grooved handle.



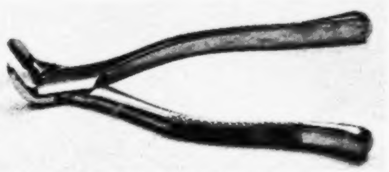
Surgical Instruments and Terminology
(Information Sheet continued)

DENTAL EQUIPMENT



Molar Cutter

Designed so cutting edges encompass entire tooth at once preventing fracture at an undesirable point. Nickel plated.



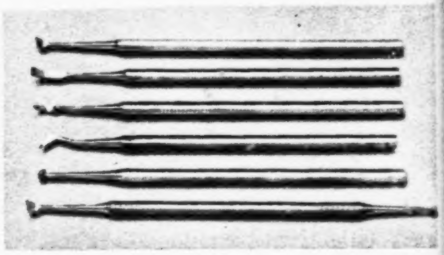
Canine Tooth Splitter & Separator

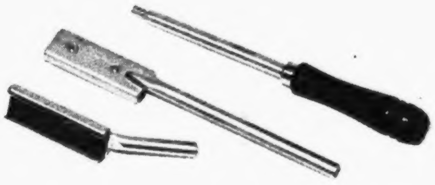
For use prior to dental extractions. Stainless steel. Length 6¾″.

Canine Tartar Scrapers

Stainless steel, approx. 6″ long.

- **Curved,** with angular edge for flat scaling
- **Curved,** with straight edge for flat scaling
- **Claw type** for scraping between teeth
- **Angular** for scaling back and sides
- **Triangular** for flat and side scaling
- **Double end**





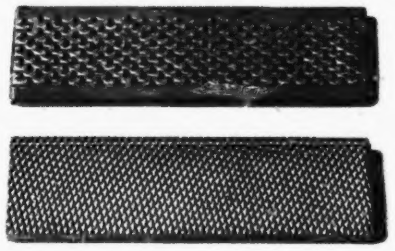
Dental Float

For removal of rough protrusions or burrs from equine teeth. Available with straight or angular head with detachable wood handle. Contains 2 setscrews through back to hold blade. Complete with blades. Chrome plated.

HL 2232 00—Angular & Straight Head, jointed, w/handle
HL 2234 00—Straight Head w/handle
HL 2234 01—Handle only for 2234
HL 2234 02—Straight Head only
HL 2236 00—Angular Head w/handle
HL 2236 01—Handle only for 2236
HL 2236 02—Angular Head only

Dental Mallet

Lightweight. Ideal for tapping or short, light blows. Head is constructed of tough, tightly coiled, hydraulically-compressed water buffalo rawhide, 1¾″ in diameter x 3¼″. Handle is straight grained hickory.



Float Blades

For use with Dental Float above.

HL 2238 00—File and Rasp (ea.)
HL 2238 00—File and Rasp (12)
HL 2240 00—Rasp and Rasp (ea.)
HL 2240 00—Rasp and Rasp (12)

Dental Punch

Chrome-plated, 8″ long, with concave end.

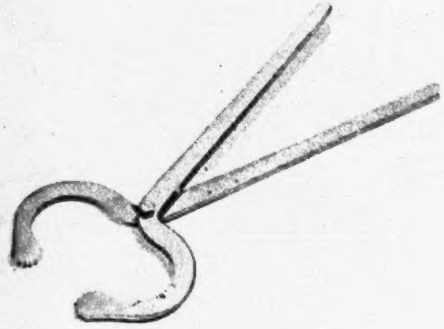
HL 2257 00—Straight
HL 2259 00—Curved

Ventricular Burr

For use in everting gutteral pouches in roaring operations. Steel end and hollow brass handle. Chrome plated. Length 8″.

Surgical Instruments and Terminology (Information Sheet continued)

HOOF EQUIPMENT



Hoof Tester

Malleable casting, satin, nickel-finish. Length 15¼".

Hoof Parer

Polished, rust-resistant cutting jaws. Length 14".

Hoof Nippers

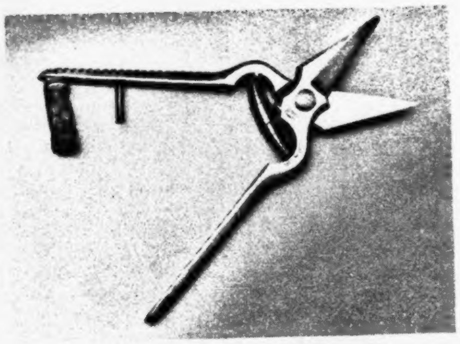
Polished, rust-resistant cutting jaws. Strong and serviceable. Length 14"

Squire Hoof Trimmer

Long wood handle permits operator to use while standing. Forged steel cutting jaws. Length 30".

Cow Boot

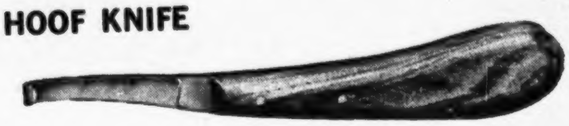
Heavy, durable rubber, 9½" high with non-skid sole. Shaped for bovine feet with room for dew claws. Adequate size for large animals; small feet may be bandaged to fill boot. Lacing provides adjustment for fitting around ankle.



Burdizzo Foot Rot Shears

Ideal for hoof trimming required in foot rot treatment and for trimming hooves of sheep. Solid, forged steel, highly polished. Handles are serrated for firm grip, have spring-tension between. Length 10", blades 2½".

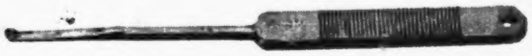
HOOF KNIFE



Resco Nail Trimmer

Nail trimmer for dogs and cats. Does not split or crush the nail.

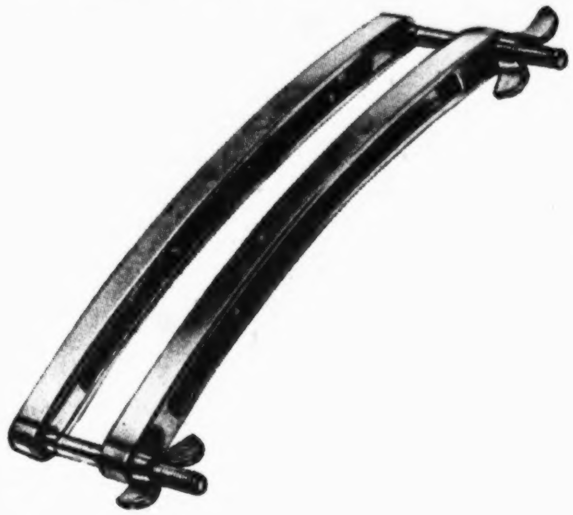
NAIL HOLE CURETTE



Surgical Instruments and Terminology
(Information Sheet continued)

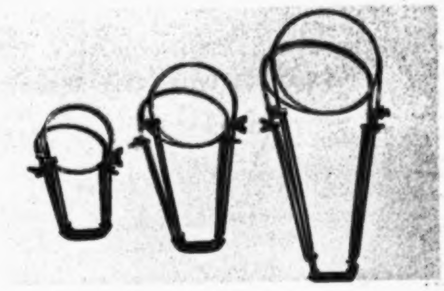
FRACTURE EQUIPMENT

8″ HERNIA CLAMP



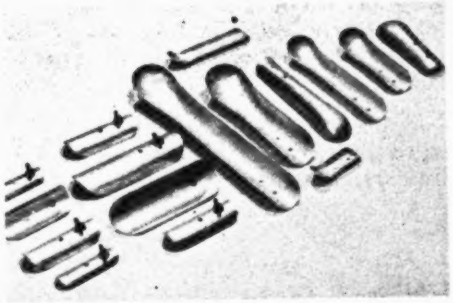
Hudson Adjustable Splints

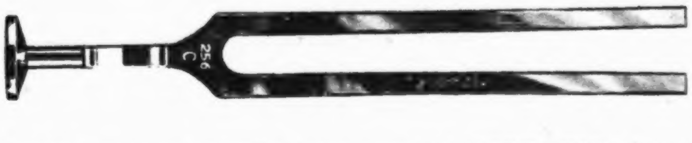
Formed from round, chrome-plated steel rod. Telescoping rods secured by wing nuts may be adjusted in length as desired. Available in three sizes, per set of 1 each size or individually. Small size, ring diameter 4½″—adjusts from 9″ to 14″; medium size, ring diameter 5¾″—adjusts from 11¾″ to 19″; large size, ring diameter 7″ — adjusts from 18″ to 31″.



Mason Meta Splints

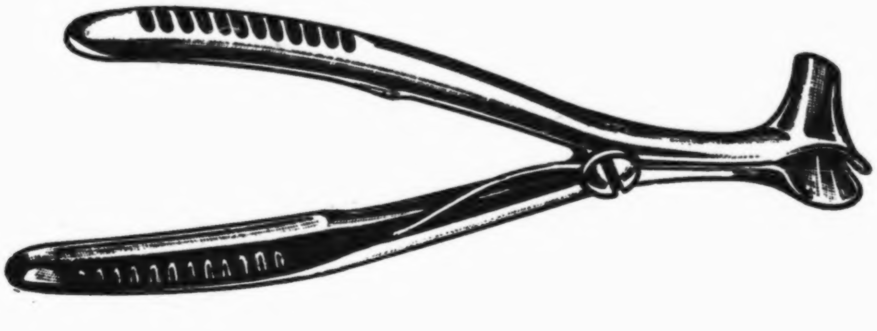
Used in the treatment of metatarsal and metacarpal fractures, as well as soft injuries in lower leg and paw. Also useful in certain radial and ulnar fractures. Speedily applied, padded with cotton and taped to limb. Lightweight duraluminum. Weight from ⅛ oz. to 3 oz. Available in sets of 8 splints, with or without extensions. A set consists of 1 large 12″, 1 large 8″, 2 medium 8″, 2 medium 5″, 1 small 5″, 1 small 3″.





-1710 BONE CONDUCTION TUNING FORK, 7¼″, *chrome plated steel; has finger rest, finger hold and foot for bone conduction work.*

NASAL SPECULUM



Aluminum Splint Rods

Strong, flexible rods, 72″ length, can be cut to any desired length and formed to any shape.

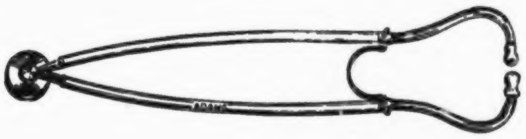
–3/16″ x 72″

–¼″ x 72″

–⅜″ x 72″

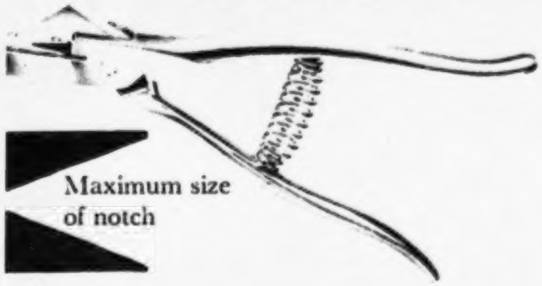
Manhattan Non-Roar Stethoscope

Soft rubber-rimmed, sound deadener, non-roar chest piece with metal diaphragm. Rubber ear tips.



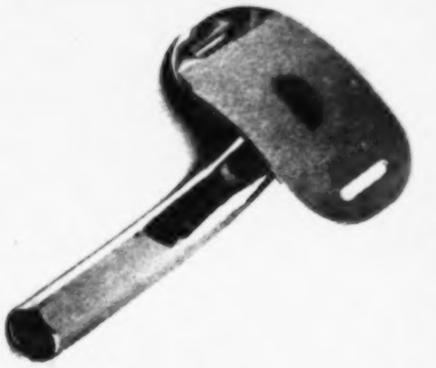
Surgical Instruments and Terminology
(Information Sheet continued)

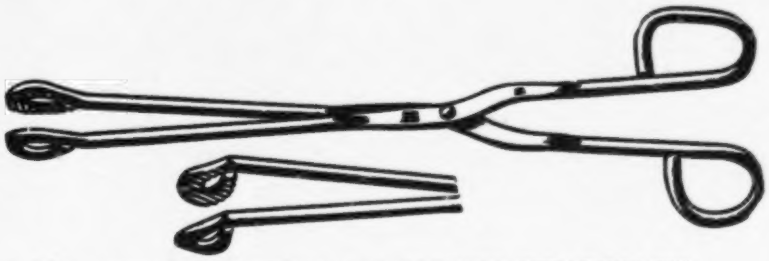
EAR NOTCHING PUNCH



Tracheotomy Tube

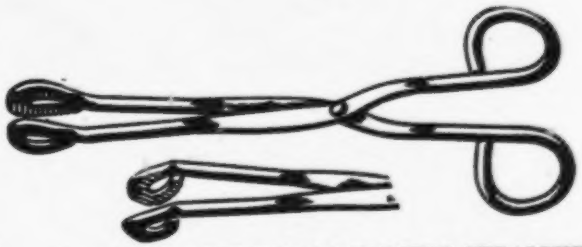
Brass, chrome-plated, oval shaped. Holes in base plate allow sutures to be placed in skin for retaining position of tube. Outside dimensions of oval tube, 1³⁄₁₆" x ½". Overall length, 6".





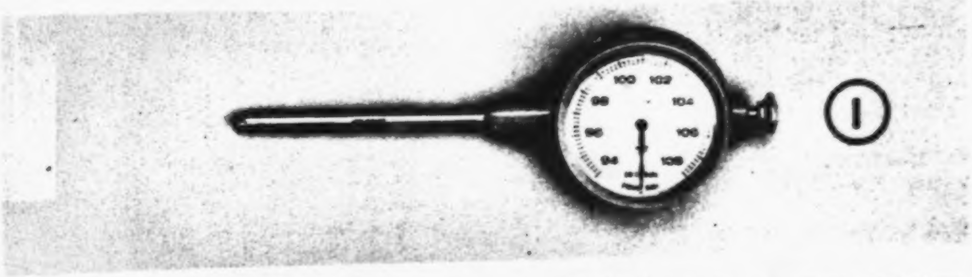
B-782 UTILITY and STERILIZER FORCEPS, STRAIGHT, 11".
stainless steel ....

B-782X UTILITY and STERILIZER FORCEPS, CURVED, 11".
stainless steel ....



B-783 UTILITY and STERILIZER FORCEPS, STRAIGHT, 8".
stainless steel ....

B-783X UTILITY and STERILIZER FORCEPS, CURVED, 8".
stainless steel ....

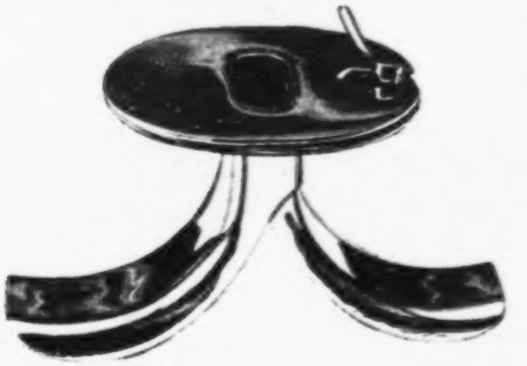


(I) Dial Thermometer

Reads like a watch. Unbreakable plastic dial-housing and crystal. Insert thermometer and press button after required time; temperature registers on dial. Length of tube, about 2".

HL 0920 00—For small animals
HL 0921 00—For large animals

DYSON TRACHEA TUBE



Norden Heavy-Duty Thermometer

Made of select heavy tubing, well seasoned, large figures with heavy loop end. Carefully tested and guaranteed satisfactory in every way. Accuracy certified.

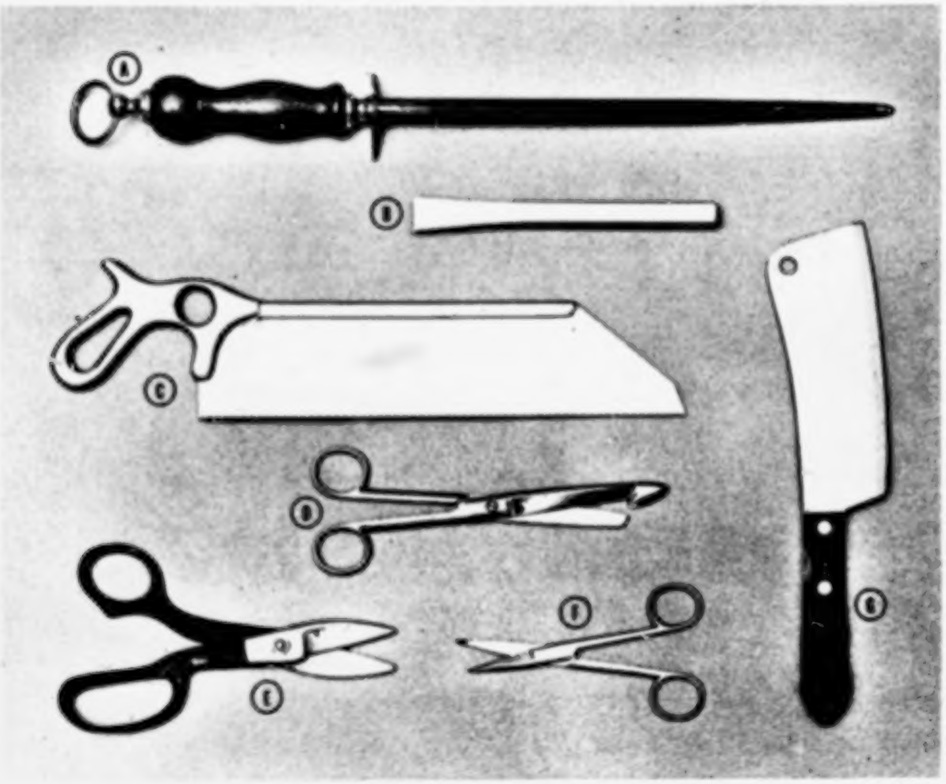
NL 1705—4" Thermometer
NL 1706—4" Thermometer with case
NL 1707—5" Thermometer
NL 1708—5" Thermometer with case

Thermometer Case

New fountain pen style thermometer case with spring to keep thermometer from falling out.

Surgical Instruments and Terminology
(Information Sheet continued)

POSTMORTEM EQUIPMENT



(A) Knife Steel

Fine cut sharpening steel, magnetized. Ebonized hardwood handle. 12".

(B) Postmortem Chisel

Heavy. Chrome plated. Cutting edge ¾" wide. Length 7".

(C) Postmortem Saw

High grade tempered steel, chrome plated, with lightweight, bronze handle designed to fit hand. Blade 11" long, 2¼" wide. Saw back reinforced.

(D) Enterotome Scissors

Chrome plated. Length 8". One probe-point blade.

(E) Postmortem Scissors

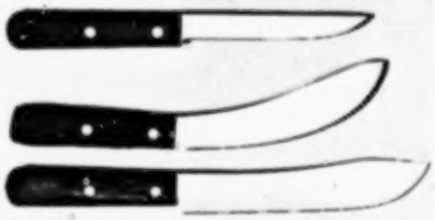
One serrated edge. Straight, polished blades. Black finished rings. Length 7¾".

(F) Avian Postmortem Scissors

Chrome plated. Straight. One extended probe for opening intestine. Length 5½".

(G) Postmortem Cleaver

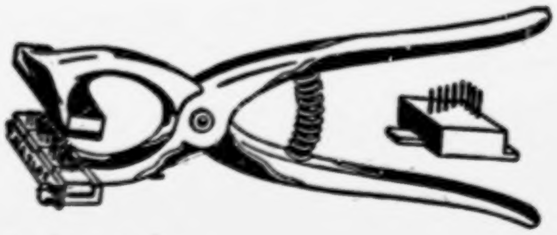
Light type. Wood handle. Blade 7" long.



Postmortem Knives

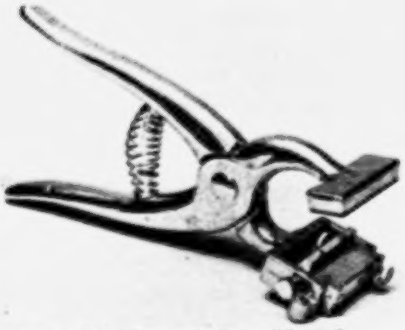
High carbon, satin glaze blade. Rosewood handle. Three blade styles and lengths.

HL 1040 00—7" Blade, straight
HL 1041 00—5¾" Blade, curved
HL 1042 00—5" Blade, straight



Tattoo Pliers

Holds one to four letters or figures. Animals are permanently identified on inside of ear with indelible ink deposited beneath the skin. Figures or letters are easily removed; pliers are durable and cadmium-plated. Letters A-Z available.



Plier with Revolving Head

Accommodates up to 4 letters or numbers, ⅜", on opposite sides of head block. A tattoo of 1 to 4 letters or numbers can be applied, then quickly rotated and another tattoo of 4 letters or numbers applied.

Agricultural Education
Teaching Materials Center
College Station, Texas
******
Texas Education Agency
Texas A&M University
(cooperating)

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Surgery Preparation and Procedures

OBJECTIVE: To learn the procedures and practices in preparing for surgery, assisting in surgery, and in post-operative clean-up.

REFERENCE: Required:

Information Sheet," Surgery Preparation and Procedures"

QUESTIONS or ACTIVITIES:

1. List steps in preparing surgery room for an operation.
2. When should sterile bundles be opened?
3. Who should arrange the instrument table?
4. How should the operator or assistant in sterile dress move a table?
5. Explain how an attendant not in sterile dress should move a table.
6. How should anyone admitted to the operating room be dressed?
7. A freshly laundered cap and mask should be worn by whom?
8. What is used to clean the operative area?
9. How may the antiseptic with dye be applied?
10. List the post-operative clean-up steps?

Information Sheet
on
SURGERY PREPARATION AND PROCEDURES

The information in this unit is presented with the assumption that the student has completed Unit VIII, Sterilization and Disinfection Procedures.

To prepare for an operation, the assistant should clean the surgery room, making sure that the windows are closed and that the woodwork, light fixtures, tables, cabinets, stoves or radiators, and floors are free of dust. He should place the ties for the animal and the equipment items for anesthesia in readiness. All equipment to be used should be removed from storage cabinets and placed on the tables. Sterile bundles and germicide basins should be put in place, but not opened until they are to be used.

Soap, sterile brushes, nail files, caps, and masks should be readily accessible. The nail file should be placed in a basin containing 70% alcohol or other germicide for ten minutes prior to being used. Caps and masks should be freshly laundered, but need not be sterile. Sterile covers should be placed on instrument and surgery tables.

After the assistant has opened the surgical bundle for the scrubbed operators to get their sterile gowns, anyone not in sterile dress should not approach the instrument table closer than two feet. Therefore, the instrument table must be arranged by the operator or the assistant. If any of the sterile tables must be moved, the sterile operator or assistant may move it by grasping it through the sterile covering previously placed on the table. If the operator or the assistant contaminates the skin of their hands, they should rescrub. If an attendent not in sterile dress moves a sterile table, he should crouch down at least two feet away and grasp the stand or legs well below the sterile top.

Everyone admitted to the operating room must wear clean clothes and his shoes should be free of dust and dirt. The face, head, and hair of everyone who comes close to the operating table should be protected by a freshly laundered cap and mask, If a cough or sneeze is unavoidable, the person should leave the room or at least turn his head away from the sterile field and gowns.

The preparation of the skin of the patient was generally covered in Unit VIII, Topic 3, but more specific instructions are detailed by the following:

1. After the hair is removed, the entire operative area should be washed with soap or detergent and water with the aid of a gauze sponge or brush.

Surgery Preparation and Procedures
(Information Sheet continued)

The soap is removed with cotton, then the gauze sponges and cotton should be discarded.

2. Scrubbing with soap and water is repeated until the cotton shows that all dirt is removed. This is tested by rubbing a piece of clean cotton or gauze over the area to see if it becomes discolored.
3. After the first preliminary scrubbing,all further cleaning should be started at the center of the area and continued toward the outside. This will wash the bacteria away from the incision site.
4. After the area is free of dirt and is dry, 70% alcohol is applied with a sterile gauze sponge, starting at the center and wiping toward the outside.
5. With the area thoroughly cleansed and dry, it can be painted with an antiseptic solution containing a dye or cleaned further by three applications each of isopropyl alcohol and a quaternary ammonia solution applied alternately.
6. Allow area to air-dry slowly.
7. The area is then covered with an antiseptic containing a dye to outline the area. Recommendations for this are alcoholic zepheran, phemerol, metaphen, merthiolate, phenyl, alcoholic mercurie nitrate, 5% mercurochrome, and 3.5% iodine in alcohol. The antiseptic may be applied with a sterile gauze sponge, applying in straight strokes from the center to the outside, or may be sprayed on with an atomizer.

After the completion of the operation, all gloves, instruments, and basins used should be scrubbed with soap and water and sterilized. Gowns, drapes, and table covers should be laundered and sterilized. Caps, masks, and other linens should be laundered. When all equipment has been cleaned and placed in storage cabinets, the room should be thoroughly scrubbed and disinfected.

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Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Principles of Anesthesia

OBJECTIVE: To learn the types of anesthetics and common principles involved in anesthesia.

REFERENCES: Required:

Information Sheet, "Principles of Anesthesia"

QUESTIONS or ACTIVITIES:

1. What are two major reasons for using anesthetics on animals?
2. What differences exist in principles of using anesthetics on people and animals?
3. What should be the first consideration when using anesthetics on animals?
4. Name the classes of anesthetics based on the part of the nervous system they affect.
5. Define a volatile and a non-volatile anesthetic and give an example of each.
6. List disadvantages of ether.
7. List points to observe to determine the stage of anesthesia.
8. List the stages of anesthesia.
9. What can be done to counter-act an over-dosage of a general anesthetic?
10. Use every opportunity when assisting the veterinarian to develop knowledge and skill in recognizing the stages of anesthesia.

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Information Sheet
on
PRINCIPLES OF ANESTHESIA

The use of anesthetics to control pain during operations is just as essential for animals as it is for people. Another major reason for anesthesia in animals is to insure complete control to prevent sudden movement so that the surgery can be performed more efficiently.

Differences in using anesthetics on people and animals include:

1. The reaction of several species of animals to a given anesthetic may be different.
2. Animals will differ in size and temperament within a species.
3. Species of animals will differ in anatomy and physiology,
4. The veterinarian cannot expect much cooperation from animals while administering the anesthetic.

Therefore, in using anesthetics on animals, the first consideration should be the safety of the anesthetic for the patient. One anesthetic may be ideal for one animal but harmful to another. A successful operation will not be too helpful if the patient dies from the anesthetic. Also, the animal will usually need to be restrained physically or with a chemical sedative (tranquilizer or analgesic) to properly administer an anesthetic.

Anesthetic agents may be classed according to the part of the nervous system they affect as local, general, and spinal. Local anesthetics influence or deaden the sensory nerves in a relatively small area. General anesthetics influence the entire central nervous system bringing about a loss of consciousness, while spinal anethesia affects the nerves within the spine.

The type of anesthetic to use may be determined by a number of factors which include:

1. The temperament or disposition of the animal.
2. The extent of the operation .
3. The location of the operation.
4. The species of animal.
5. The size of the animal.

Volatile anesthetics which are administered in the air the animal breathes include ether, chloroform, nitrous oxide, cyclopropane, methoxyfluorane, and ethyl ether. Non-volatile anesthetics such as pentobarbital sodium (Nembutal),

Principles of Anesthesia
(Information Sheet continued)

thiopental sodium (Pentothal), chloral hydrate, and magnesium sulfate are usually injected intravenously. Ether (diethyl ether) is usually considered very safe for the patient, but it's vapor is flammable, it irritates respiratory membranes, and it is slow in its effect. Atropine or morphine with atropine are often given prior to ether to reduce the flow of secretions and to make the animal more calm and easier to be influenced by the ether. Pentobarbital sodium is a commonly used general anesthetic in small animals which effects rapid induction and gives an anesthesia duration of 45 to 60 minutes.

When injected intravenously, anesthetic agents are given "to effect" (until the desired stage of anesthesia is reached). The total amount given will depend on the response of the individual animal. Not all animals will require the calculated dosage and it is well to be prepared for the animal that will require more than the calculated amount. One procedure to use in administering Nembutal is to inject from 1/3 to 1/2 of the calculated dose, then observe the reactions and reflexes of the animals as the rest of the agent is given in small amounts.

To determine the stage or depth of anesthesia, the following points can be observed:

1. The loss of voluntary movements
2. The loss of involuntary movements
3. Depth and rate of breathing
4. Decrease and loss of reflexes (pedal, tongue, palpebral, and corneal reflexes)
5. Color of the blood in the operative field (should remain a bright red color)
6. Opposition of animal to flexing and extending the legs
7. Muscle tone (the large muscles of the legs should feel firm in the surgical anesthesia stage; flabby in deeper anesthesia stages)

The stages of anesthesia may be listed as:

1st stage - Voluntary movement	3rd stage - Surgical Anesthesia
2nd stage - Involuntary movement	4th stage - Paralysis

Death from an over-dose of most general anesthetics is usually caused by respiratory paralysis. If the over-dosage is mild, most animals can be saved by giving them artificial respiration.

No attempt to specify anesthetic agents or dosages has been made because the specific agent, calculation of dosage, and method of administering should be done by the veterinarian. It is recommended that the student strive to develop the knowledge and skill to recognize the various stages of anesthesia with the help of the veterinarian.

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Assignment Sheet
for
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UNIT: Professional Assistance

TOPIC: Handling and Caring for Drugs

OBJECTIVE: To learn the importance of and procedures used in handling and caring for drugs.

REFERENCE: Required:

Information Sheet, "Handling and Caring for Drugs?

QUESTIONS or ACTIVITIES:

1. How should the proper method of handling and storing each drug be determined?
2. Describe the care of unused portions of biologicals that have been opened.
3. The expiration date on products is based on what?
4. Why should a complete inventory be maintained and checked regularly?
5. Why may the veterinarian choose to order drugs in large quantities?
6. What are advantages of an organized coding system?
7. Neat and orderly shelves and other storage facilities and proper labeling of containers offer what advantages?

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Information Sheet
on
HANDLING AND CARING FOR DRUGS

To maintain the condition and effectiveness of antibiotics, biologicals, and other drugs, they must be properly handled and stored until used. Federal regulations require licensed manufacturers of all veterinary products to label the container or supply the buyer of the products with information on the proper methods of handling and storing the products. These instructions should be read and followed carefully. Many products will need to be stored in a cool place, usually under refrigeration, where no sunlight can enter.

Care should be taken to keep products free of contamination. Bottles containing several doses should be discarded after part of the contents are used unless they were opened in an aseptic manner and then stored under refrigeration. When products are reconstituted, they should be used immediately. The expiration date on products is based on storage under optimum conditions. The product should not be used after the expiration date because of the possibility that it has lost its effectiveness.

Empty containers should be burned or otherwise discarded in a manner that will prevent damage or harm to children or animals. Virus bottles improperly disposed of could result in an outbreak of disease, while some containers may cause poisoning or other harmful effects.

A complete inventory of all products should be maintained and checked regularly to facilitate dispensing of products and ordering supplies. The inventory of the supplies and products in the car or truck of the veterinarian should not be forgotten. The supplies in the vehicle should be replenished regularly to prevent extra miles and to save time in making calls.

To save time and to take advantage of volume discounts, the veterinarian may order drugs and other supplies in large quantities. Many of these products need to be placed in smaller containers and labeled before storage for future use by the veterinarian or before being dispensed to clients.

To prevent confusion and possible damage due to confusion, and professional dignity, and save time, space, and money, the handling and storage of drug supplies and products should be done with an organized coding system. The coding system should be simple and might be done similar to the following steps:

Handling and Caring for Drugs
(Information Sheet continued)

1. List all products in a notebook and assign a code number to each.
2. Each item is also identified with a letter code using the letters as follows: "L" for liquids, "T" for tablets, "P" for powders, "C" for capsules, "S" or "O" for salves or ointments, "EO" for eye ointments, "WM" for worm medicine, "I" for injectables, "Bio" for biologicals, etc.
3. A different page in the notebook is assigned to each prefix letter and all drugs, obsolete or active, are listed under the specific letter.
4. The notebook should contain every drug with code number, name of item, cost, and selling price for each drug.

Shelves and other storage facilities should be kept neat and orderly with every bottle or other containers properly labeled. In addition to improving the general appearance and preventing mistakes, this is important in keeping an up-to-date, complete inventory of all supples.

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Assignment Sheet
for
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UNIT: Professional Assistance

TOPIC: Collecting and Handling Semen

OBJECTIVE: To learn principles and methods of collecting and handling semen.

REFERENCE: Required:

Stockman's Handbook, Ensminger, pp. 30-34

QUESTIONS or ACTIVITIES:

1. List three requirements of methods to collect semen.
2. The success of artificial insemination is often due to what?
3. The male germ cells, spermatozoa, are easily killed by what?
4. List steps in cleaning and preparing utensils.
5. Name five methods of collecting semen.
6. List in table form the volume of semen, concentration of sperm, and the number of services per ejaculate of the ram, bull, boar, and stallion.
7. What are recommendations for storing liquid semen?
8. How can liquid semen be packaged for shipment?
9. What refrigerants are used to ship frozen semen?
10. What are advantages of frozen semen?
11. What are purposes of semen diluters?
12. List four commonly used semen diluters.

UNIT: Professional Assistance
TOPIC: Collecting and Handling Semen
(Assignment Sheet continued)

13. What is usually added to fluid semen diluters and always added to diluter if semen is to be frozen?

14. What drugs may be added to semen and what are purposes of adding the drugs?

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Assignment Sheet
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UNIT: Professional Assistance

TOPIC: Artificial Insemination

OBJECTIVE: To learn principles and procedures involved in the artificial insemination of different classes of animals.

REFERENCE: Required:

Stockman's Handbook, Ensminger, pp. 27-31, 33-36

QUESTIONS or ACTIVITIES:

1. List the advantages of artificial insemination.
2. In A.I. programs, conception percentage and parturition dates depend on what?
3. For a successful program, artificial insemination should be done by whom?
4. List steps in preparing females for insemination.
5. When is the best time for insemination?
6. List ovulation time of mares, cows, ewes, and sows.
7. When should insemination be done in the four animals?
8. What is the crucial point for success or failure in insemination?
9. List the part of the reproductive tract to deposit semen and the amount of diluted semen used for sows, mares and cows.
10. What are three main problems in artificial insemination of swine and horses?

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Assignment Sheet
for
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UNIT: Professional Assistance

TOPIC: Reproduction and Palpation

OBJECTIVE: To become familiar with terms and principles in physiology of reproduction and pregnancy testing.

REFERENCE: Required:

Beef Cattle Science, Ensminger, pp. 207-218, 223-225

QUESTIONS or ACTIVITIES:

1. List the ten parts of the reproductive organs of the bull and study Figure 79, page 209 for their location.
2. Define and give the function of testosterone.
3. Define cryptorchid and vasectomy.
4. What allows the penis to become longer during erection?
5. List the seven parts of the female reproductive organs and note their location in Figure 80, page 212.
6. What are three functions of the ovaries?
7. What are the functions of progesterone and estrogen?
8. Define fertilization and tell where it takes place.
9. All phases of the reproductive cycle are regulated by hormones from what?
10. The rectal method to determine pregnancy depends upon what?
11. Why is the rectal method the most common test of pregnancy?
12. List three other tests for pregnancy.

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Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Assistance at Birth

OBJECTIVE: To learn principles of assisting and procedures involved in normal and abnormal presentations.

REFERENCE: Required:

Beef Cattle Science, Ensminger, pp. 226-231

QUESTIONS or ACTIVITIES:

1. List the steps in normal parturition.
2. Describe the position of the fetus in a normal presentation and study Figure 86, page 227 for normal positions of twins.
3. A breech presentation may have what problems?
4. How much time should be given for a normal delivery?
5. When rendering assistance or "pulling the calf", the force exerted or "pull" should be in what direction?
6. Study figures 87 and 88, pp. 228 and 229, and give the corrections for the following abnormal positions:
    a. Anterior, head up and backward
    b. Anterior, head first with back down
    c. Posterior, fetus on back
    d. Back presentation
7. List steps in caring for the new-born young.
8. The placenta is normally expelled in what length of time?
9. What should be done with the afterbirth after it is expelled?

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Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Meat Inspection

OBJECTIVE: To learn the importance of and common procedures of meat inspection and to learn general anatomy and terminology related to food animals.

REFERENCE: Required:

Information Sheet, "Meat Inspection"

QUESTIONS or ACTIVITIES:

1. What are five reasons for meat inspection?
2. What may be accomplished by inspection prior to slaughter?
3. List six points to consider when inspecting animals prior to slaughter.
4. List the four types of vertebrae.
5. Cattle and sheep have how many pairs of ribs?
6. What are the two main body cavities called?
7. List the parts of the respiratory system.
8. The circulatory system includes what?
9. What are two functions of lymph?
10. List three ductless glands that secrete hormones.
11. The excretory system is composed of what?
12. Condemned carcasses or products are used in what manner?

Information Sheet
on
MEAT INSPECTION

Federal meat inspection was started and is maintained by the Meat Inspection Act of June 30, 1906 which applies to any meat or meat products going into interstate shipment or foreign commerce.

The importance of meat inspection has long been recognized as necessary for the following reasons:

1. To protect the buyer from illnesses caused by consuming meat
2. To prevent the sale of meat which will be repulsive to the buyer
3. To prevent the sale of meat that is lower in value than the buyer believes he is buying
4. To protect the livestock industry from diseases spread by the meat or products of diseased animals
5. To prevent the use of harmful ingredients

Inspection of meat includes inspection of the animal prior to slaughter and inspection of the carcass and internal organs after slaughter. Inspection prior to slaughter may:

1. Detect symptoms of disease that direct the attention of the inspector to examine a particular organ or part of the carcass.
2. Detect symptoms of diseases not readily detected by post-mortem examination
3. Detect diseases that may spread rapidly if action is not promptly initiated.

Inspection of live animals should be done not more than 24 hours before slaughter and should include particular attention to

1. Posture and movement of the animal.
2. State of condition or nutrition.
3. Condition of the hide and hair.
4. External abnormalities.
5. The respiratory system.
6. Temperature of the animal.

Post-mortem or carcass and internal organ examination requires a trained technician with skills and knowledge including anatomy of the common food animals, principles of slaughtering and dressing, bacterial and parasitic diseases, and physiological and pathological conditions.

Meat Inspection
(Information Sheet continued)

Common terms and names used in referring to the skeletal, muscular, respiratory, digestive, circulatory, lymphatic, excretory, and reproductive systems should be familiar to the student.

The bones of the carcass of a steer are numbered in Figure No. 1 with names matched with numbers below. This example can be related to the skeleton of hogs and sheep by noting that all three classes of animals have seven cervical (neck) and six lumbar vertebrae; dorsal vertebrae and number 13 in cattle and sheep and 14 in hogs; and there are five sacral vertebrae in cattle and sheep and only four in hogs. Cattle and sheep have 13 pairs of ribs while most breeds of hogs have 14 pairs.

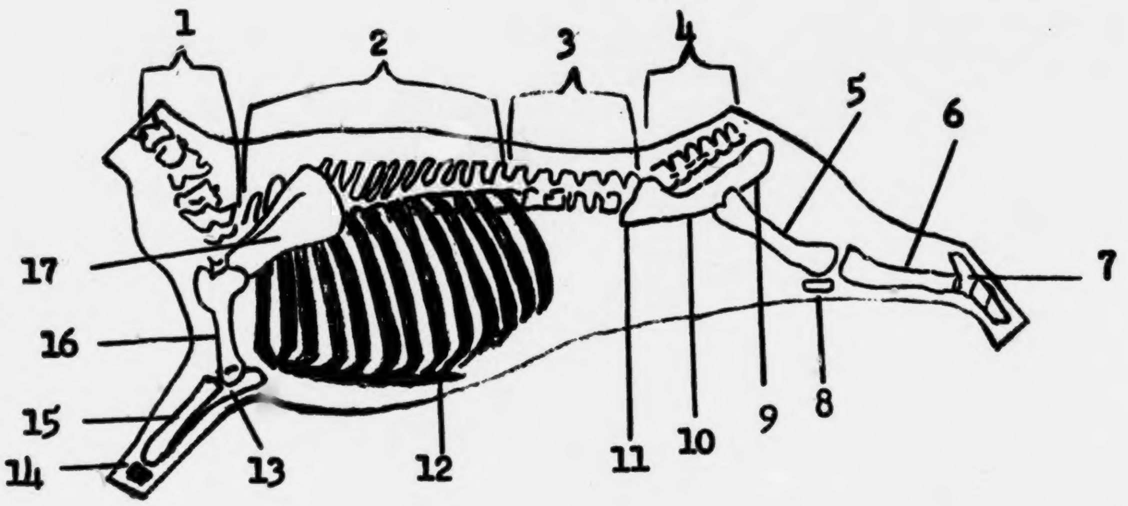

Figure No. 1

Meat Inspection
(Information Sheet continued)

1. Cervical
2. Dorsal
3. Lumbar
4. Sacral

Vertebrae

5. Femur
6. Tibia
7. Hock

Rear Leg

8. Patella
9. Ischium - (Aitch)
10. Pubis
11. Ilium - (Hip)

Pelvis

12. Sternum
13. Ulna
14. Knee
15. Radius
16. Humerus

Foreleg

17. Scapula

The skeleton and muscles form the two main body cavities, the chest cavity or thorax and the abdomen which are separated by the diaphragm. The thorax is enclosed by the dorsal vertebrae, ribs, and sternum and is lined by a membrane called pleura. The abdomen is enclosed by the dorsal and lumbar vertebrae and the last three ribs and the belly muscles. The lining of the abdomen is known as the peritoneum.

The respiratory system consists of the nasal cavity, larynx and epiglottis, trachea, and lungs. The larynx or voice box holds the epiglottis which closes the trachea during the act of swallowing.

The circulatory system includes the heart, blood vessels, and the blood. The heart is divided into a right and left side with each side being divided into an auricle above the ventricle below. Arteries carry blood away from the heart and end in capillaries. Veins collect blood from the capillaries and carry it back to the heart. The blood is composed of a fluid, plasma, and red and white blood cells or corpuscles.

The lymphatic system, composed of lymph, lymph vessels and lymph nodes, carries some nutrients from the intestines to the tissue cells and protects the body by rendering waste products and fireign bodies harmless. The lymph nodes may become enlarged due to this activity.

Important ductless glands that secrete hormones include the following:

1. Thyroid glands - on either side of larynx
2. Thymus gland - starts above the heart and goes up on either side of the neck. (known as the sweetbread)
3. Adrenal glands - in front of and close to the kidneys

Meat Inspection
(Information Sheet continued)

The excretory system removes the waste material that is not removed by the lymph and consists of the kidneys, ureters, and bladder.

The spleen, an organ that might be called a blood filter that manufactures white blood cells, becomes enlarged when over-worked due to the effect of certain diseases.

Most inspection regulations condemn the carcasses or portions of carcasses of animals with certain bacterial or parasitic diseases and physiological and pathological conditions. Some of the common diseases and conditions include hog cholera, enteritis, tetanus, rabies, blackleg, anthrax, peritonitis, tuberculosis, shipping fever, pneumonia, extreme emaciation, lumpy jaw, foot-and-mouth disease, tumors, abscessed livers, and various parasites that may render the meat unfit for human consumption.

The inspector has the authority to destroy a condemned product or correct an unsanitary condition. Condemned animals, carcasses, and other products are usually destroyed by rendering them in steam pressure tanks and are then used in tankage or fertilizer.

Information contained in other topics in Unit X will be very helpful in assisting the veterinarian with meat inspection.

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Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Post-Mortem Examinations

OBJECTIVE: To learn principles, procedures, and terms in preparing for and making post-mortem examinations.

REFERENCE: Required:

Information Sheet, " Post-Mortem Examinations "

QUESTIONS or ACTIVITIES:

1. Why are post-mortem examinations important to the veterinarian?
2. List three points to consider in selecting a place for the post-mortem.
3. Describe suitable clothing for making an examination.
4. List common instruments and tools used in making post-mortem examinations.
5. Why should records of examinations be made and filed?
6. List four considerations in selecting the method of euthanasia.
7. What are the commonly used methods of euthanasia for large animals?
8. What method is common for putting small animals to death?
9. Carefully study the definitions of terms listed in the information sheet and be prepared to define any of them or to understand their meaning when used.

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Information Sheet
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POST-MORTEM EXAMINATIONS

This material is written with the assumption that the student has read and studied the previous topics in Unit X,because many of the common terms and names used will be applicable to post-mortem examinations.

The importance of the autopsy, necropsy, or post-mortem examination to the veterinarian cannot be over-looked. It is a valuable part of diagnosis which is necessary for effective control of animal diseases, and will very often answer the question, "Why did the animal die?" Conducting and recording post-mortem examinations will also give the veterinarian much valuable experience and information that will aid in future cases in his practice.

Post-mortem examinations should usually be performed as soon as possible after death. The speed of post-mortem changes varies in different parts of the body and is especially affected by the temperature.

In selecting a place for a post-mortem, not only convenience, but also sanitation and disposition of the carcass should be considered. Small animals that are easily transported may be "posted" in a well-ventilated room in the clinic. Since this is not feasible with large animals, precautions that should be considered are:

1. Avoid contamination of ground, quarters, or food of livestock.
2. If possible, choose area that can be readily disinfected.
3. If the above two precautions cannot be followed, the body can be placed on straw that will absorb the fluids and then be burned or buried.
4. If carcass is to be hauled to rendering plant, it should be accessible to the truck.
5. If it is to remain, the carcass should be properly and completely buried or burned.

For safety, it is important for the veterinarian and assistant to wear suitable clothing while making post-mortem examinations. One-piece coveralls, rubber gloves, and rubber overshoes that can be sterilized or disinfected after each use are recommended.

In addition to surgical instruments such as scissors, forceps, and probes, other instruments for "posting" should include: two sharp knives; one with straight, pointed blade and one with curved skinning blade, saw for cutting

Post-Mortem Examinations
(Information Sheet continued)

bone, bone chisels, and carpenter wrecking bar for prying bones apart. All clothing and instruments should be cleaned and disinfected or sterilized after each use.

For doctor-client relationships, research, disputes and complications that might arise, complete records should be made and filed on each post-mortem examination.

The method of euthanasia (putting animal to death) should (1) cause the animal little pain or fright, (2) be agreeable to the owner of the animal, (3) not soil the premises, and (4) not change the body in any way that will hamper post-mortem findings. For large animals, shooting, stunning with a blow on the head, electrocution, or intravenous injection of magnesium sulfate are commonly used. The pentrobarbital, nembutal, (about twice the anesthetic dose) is very often used for pets and other small animals.

In addition to the anatomy and terminology learned in Unit X, Topics 3 and 10-14, the following definitions should prove helpful in assisting the veterinarian to perform post-mortem examinations:

1. Abscess - A lesion containing matter or pus
2. Arthritis - Inflammation occuring in a joint
3. Asphyxia - Refers to suffocation
4. Botulism - One form of food poisoning
5. Calculi - Hard, pebble-like formations in various parts of the body
6. Atrophy - Refers to wasting of tissues
7. Congestion - To refer to an increased amount of blood in a part of the body
8. Cystitis - An inflammation of the bladder
9. Dermatitis - A skin inflammation or disorder.
10. Distomatosis - Refers to presence of the liver fluke
11. Dysentery - Severe diarrhea usually accompanied by blood
12. Emphysema - A part distended or filled with air
13. Enteritis - An intestinal inflammation
14. Gangrene - Death and decomposition of tissue
15. Gastritis - A stomach inflammation
16. Gastro-enteritis - Inflamed stomach and intestines
17. Hepatitis - Liver inflammation
18. Hypertrophy - Increased size of an organ
19. Inflammation - Abnormal changes in a tissue usually accompanied by heat, pain, redness, and swelling
20. Leucocytes - White blood cells

Post-Mortem Examinations
(Information Sheet continued)

21. Malignant tumor - Tumor that forms secondary growths
22. Mastitis - Udder inflammation
23. Melanosis - A black coloring or pigmentation
24. Necrosis - Death of a part or tissue
25. Nephritis - Kidney inflammation
26. Edema or dropsy - Swelling due to excess fluids in a body part
27. Tumor - An abnormal growth

Adequate space and time prevent further description of procedures and principles involved in post-mortem examinations. However, careful observation of and attention to the veterinarian, particularly in selecting and preparing specimens for laboratory examination and collection and preservation of parasite specimens, will enable the assistant to develop the knowledge and skills necessary to assist properly and efficiently.

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Assignment Sheet
for
VETERINARIAN ASSISTANT

UNIT: Professional Assistance

TOPIC: Principles of Genetics

OBJECTIVE: To learn the fundamentals of heredity and inheritance factors and genetic terminology.

REFERENCE: Required:

Beef Cattle Science, Ensminger, pp. 122-205

QUESTIONS or ACTIVITIES:

1. Who is considered the founder of modern genetics?
2. The fundamental units of genetics that determine all heredity characteristics are called what?
3. On what are a pair of genes carried in the body cell?
4. How many pairs of chromosomes do cattle, swine, horses, sheep, and man have?
5. The reproductive cell is composed of what portion of the genes and chromosomes?
6. Define homozygous and heterozygous.
7. Define dominant and recessive genes and give examples of each in polled and horned cattle.
8. Show possible offspring from crossing a homozygous, polled bull (PP) with a horned cow (pp). (PP x pp)
9. Show possible offspring color from crossing a Red Shorthorn Bull (RR) to a White Shorthorn Cow (rr) to show lack of dominance.
10. What is a mutation?

UNIT: Professional Assistance
TOPIC: Principles of Genetics
(Assignment Sheet continued)

11. How is sex of an individual determined and give illustration of male and female chromosomes.

12. Define lethal genes.

13. Dwarfism is due to what type of gene from which parent?

14. Define a. nicking, b. inbreeding, c. closebreeding, d. linebreeding, e. outcrossing, and f. crossbreeding.

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Laboratory Aids

TOPIC: Principles of Fecal Examinations

OBJECTIVE: To learn the reasons for and the principles of making fecal examinations.

REFERENCE: Required:

Information Sheet, "Principles of Fecal Examinations"

QUESTIONS or ACTIVITIES:

1. For what purpose are most fecal examinations made in the veterinary clinic?
2. The methods and techniques used in a clinic will depend upon what?
3. List factors to consider and steps in collecting fecal samples.
4. What are the methods of microscopic examination?
5. What is the disadvantage of the direct smear method?
6. Name the solutions that may be used in the flotation method.
7. In the flotation method, why are the ova and the fecal particles separated?
8. How should the veterinary assistant develop the knowledge and skills to make fecal examinations?
9. Make every effort to obtain information and develop skills and techniques under the direct supervision of the veterinarian.

Information Sheet
on
PRINCIPLES OF FECAL EXAMINATIONS

Examining fecal samples for the presence of parasites and parasite eggs is a common practice in most veterinary clinics. The veterinary assistant should know and understand the general principles of collecting samples and making fecal examinations. Since there are various methods and techniques used at the various clinics, description of the specific steps in these methods and techniques will not be discussed here. It is felt that the assistant should receive specific instructions from the veterinarian in performing the specific methods that the veterinarian uses. The methods used will depend upon the facilities and equipment available and the personal preference of the veterinarian.

When collecting fecal samples, the first consideration is to make sure that the feces is from the animal in question. Secondly, the sample should be fresh and free from the rocks, soil, bedding, and other foreign materials. A fecal sample should be placed in a glass jar or waxed cup with a lid or may be temporarily wrapped in a non-absorbent material. If the examination is not made soon after collection, the sample may be preserved by refrigeration or in a formalin solution. However, one or both types of preservation may destroy certain larvae or parasites.

One of these methods may be used to make a microscopic examination of fecal samples: the direct method (slide smear of the feces), the flotation method or by counting the number of eggs per given weight (usually per gram).

The direct smear method involves mixing a very small amount of feces with water or saline solution on a slide, covering with a cover glass, and examining the entire smear under a low power microscope. The small amount of feces used and the presence of fecal debris keep this method of examination from being too reliable unless there is a very heavy infestation of parasites. The method is valuable for detecting coccidiosis in sheep and cattle, nematode larvae, or trichomoniasis in horses.

The flotation method requires more time and is more complex, but is usually more accurate than the direct smear. This method involves the use of a flotation solution with a high specific gravity (sodium nitrate, sodium chloride, sugar or syrup, magnesium sulphate, or zinc sulphate solutions may be used), The flotation solution is added to the filtrate obtained by thoroughly mixing about one gram of feces with 30ml. of water and filtering through a tea strainer or several layers of gauze. A centrifuge tube is half-filled with the filtrate, completely filled with the flotation solution, and centrifuged. From the top of the mixture, a drop is placed on a slide, covered with a cover glass, and examined under the microscope for the egg count by one of several techniques.

Principles of Fecal Examination
(Information Sheet continued)

The principle of the flotation method is that the lighter parasitic eggs or ova rise to the top of the solution while most of the fecal particles go to the bottom because of the differences in specific gravity. Separating the ova from the fecal particles results in a concentrated state of the ova.

The several methods of egg counting include the "McMaster Technique" which is considered to be accurate and fast.

To develop the knowledge and skills necessary to prepare samples and slides, and to conduct and read the results of fecal examinations, the assistant should be trained and practice the various skills and techniques under the direct supervision of the veterinarian.

Points to consider in gross examinations of feces with the naked eye include color and consistency of the feces, and presence of mucus, blood, undigested food, and adult parasites.

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Laboratory Aids

TOPIC: Principles of Blood Examinations

OBJECTIVE: To learn the importance of and the principles of various types of blood examinations.

REFERENCE: Required:

Information Sheet, "Principles of Blood Examinations"

QUESTIONS or ACTIVITIES:

1. What are two general methods of collecting blood samples?
2. What is the purpose of an anticoagulant in sample tubes?
3. Define erythrocytes and leukocytes.
4. List common anticoagulants.
5. How long can blood be kept for slide smears and blood cell counts?
6. What determines the coagulability of blood?
7. How may hemoglobin determination be accomplished?
8. What does "PCV" mean and upon what is it based?
9. The plate agglutination test is used to diagnose what disease?
10. How should the veterinary assistant learn and practice the skills and techniques of collecting and preparing samples and conducting blood examinations?

Information Sheet
on
PRINCIPLES OF BLOOD EXAMINATIONS

Examination of blood samples can help a trained veterinarian to diagnose certain diseases. It is not expected that the veterinary assistant will develop the skill of diagnosis when examining blood samples, but it is recognized that the assistant should understand the principles involved in collecting samples and in preparing the samples for various tests and examinations.

The collection of blood samples in the veterinary practice is usually accomplished with a syringe and needle or a bleeding needle and sample tube from a prominent vein (usually the jugular vein in most domestic animals; the anterior vena cave in swine). Very slight suction by the syringe should be used to allow the blood to flow into the syringe.

For hemoglobin determinations and blood cell counts, blood is usually collected in tubes containing an anticoagulant to prevent clotting. When such samples are collected, the tubes should be shaken or inverted several times to mix the blood and anticoagulant. If blood smears (slide with blood for staining and microscopic examination) are to be made, a pipette can be used to draw the blood from the flow through a needle, and then placing a drop of blood from the pipette on the slide.

Blood is made up of microscopic cells called erythrocytes (red blood cells), leukocytes (white blood cells), and thrombocytes (necessary for coagulation). The cells are suspended in plasma (light yellow fluid) which carries the nutrients throughout the body and the waste materials to the kidneys.

When blood is transferred to dry containers, it will clot or coagulate if it is not prevented from doing so by mixing it with an anticoagulant. Anticoagulants used include the oxalates (sodium, potassium, or ammonium oxalate), sodium citrate, and the more expensive heparin.

Blood that is to be used for slide smears should be used within 10 to 15 minutes while blood cell counts (white and red cells) and hemoglobin tests can be made as long as 24 hours after the sample is collected. Oxalated blood samples should be preserved up to these time limits in a refrigerator.

The proper steps and skills in preparing, spreading, and staining blood smears should be developed under the direct supervision of the veterinarian.

A common test on the blood serum will be to determine the coagulability of the blood. This is determined by the bleeding time and the coagulation or clotting time. In an individual animal, these times should coincide. To determine the bleeding time of an animal, a blade is used to open the skin so that a free flow of blood is obtained. The blood is removed from the skin about every thirty seconds until the bleeding stops. Again, the skills and techniques in determining the bleeding time or in determining the coagulation time by any one of the three commonly used methods should be developed and practiced under the supervision of the veterinarian.

Hemoglobin determination may be accomplished by a colorimeter, direct, or indirect method. The colorimeter is fast and accurate, but is an expensive machine. The direct method simply compares a color standard with the color of the whole blood while the indirect method involves the use of hydrochloric acid and comparing the blood-acid mixture with a color standard.

Erythrocyte (red blood cell) counts and leukocyte (white blood cell) counts require specific skills and techniques and are useful to the veterinarian in diagnosing or confirming a diagnosis. The hematocrit determination includes the sedimentation rate and the packed cell volume (PCV) of the blood. The sedimentation rate being affected by the number of erythrocytes per volume of blood and the PCV depending upon the size and number of erythrocytes per volume of blood.

Other blood tests include the plate agglutination test (for diagnosing brucellosis), blood compatability (cross-matching for transfusions), and liver function tests.

The importance of proper collection and preparation of samples and proper and accurate steps and techniques used in conducting blood examinations cannot be over-emphasized. Many of the examinations must be done by a veterinarian or a trained technician, but the veterinary assistant should apply himself to learn the required information, skills, and techniques of any phase as directed by the veterinarian.

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Laboratory Aids

TOPIC: Principles of Bacteriology Tests

OBJECTIVE: To learn the general methods and principles of conducting bacteriological tests in the veterinary practice.

REFERENCE: Required:

Information Sheet, "Principles of Bacteriology Tests"

QUESTIONS or ACTIVITIES:

1. List four bacteriological procedures used in diagnosis.
2. What are the two main factors in identifying bacteria by direct microscopic examination?
3. What are the three general forms of bacteria?
4. What stain is commonly used and what is its purpose?
5. Define Gram-negative and Gram-positive organisms.
6. When are cultural procedures used?
7. What are common serological tests that are used?
8. When is animal inoculation used?

Information Sheet
on
PRINCIPLES OF BACTERIOLOGY TESTS

Some veterinary clinics are equipped to conduct bacteriological tests and examinations for diagnostic purposes; many are not. Most veterinarians that do conduct the tests, will only perform the simplest procedures. The more complex tests are conducted at commercial or state laboratories with the veterinarian submitting suitable samples. The veterinary assistant should understand the general principles of conducting the simple tests and of collecting, preparing, and submitting samples to a laboratory.

Four general methods or bacteriological procedures in diagnosing are direct microscopic examination, culture, serological tests, and animal inoculation. The diagnosing of some diseases may be doneby one of the procedures while some may require two, three, or all four procedures.

Factors in identifying bacteria by the direct microscopic inspection include morphology (form or shape) of the different bacteria and the reaction of each type of organism to stains and dyes. The morphological classification of bacteria include spherical shape (cocci), cylindrical (rod), shape (bacilli), and spiral or curved (spirilla). Gram's stain is universally used in staining the slide smears to make the micro-organisms more easily seen and identified. The micro-organisms are divided into two groups, Gram-positive and Gram-negative, depending on their reaction to Gram's stain. In the staining process, a dye such as Genetian violet is applied to the smear and then iodine is applied to fix the blue color in the organisms that are Gram-positive. Flooding the smear with alcohol removes the blue dye from the Gram-negative organisms. A red dye is then applied to the smear to stain the Gram-negative organisms red, leaving the Gram-positive organisms blue.

The techniques of both methods of direct microscopic inspection, examination of a fresh preparation or unstained slide or of the fixed and stained smear, should be learned and practiced under the supervision of the veterinarian.

Cultural procedures may be used if microscopic examinations do not yield a definite identification. In addition to an autoclave; an incubator, proper media, and other culture equipment are needed to prepare and develop cultures. Many veterinarians are not equipped and do not have the time to use this method except by sending specimens to a commercial or state laboratory.

In certain situations, the microscopic and culture methods may be inadequate. Serological tests may be used as another method of diagnosis. The plate agglutination or tube agglutination tests are commonly used in the control and eradication programs for brucellosis and pullorum. State or federal regulations

Principles of Bacteriology Tests
(Information Sheet continued)

may govern the procedures in the diagnosing or testing for control or eradication programs, so the veterinarian must be familiar with these regulations.

The fourth method, animal inoculation, is usually not practical in the office or clinic, but is available at commercial and state laboratories. Animal inoculation is used when the suspected organism is difficult or impossible to identify and culture orwhen the specimen is contaminated. Rabbits and guinea pigs are commonly used for inoculation tests, but other animals may be used in certain cases. This procedure is especially helpful in distinguishing between certain diseases, such as anthrax and blackleg, and in confirming the diagnosis of some virus diseases such as rabies.

To be valuable to the veterinarian, bacteriological tests must be properly prepared and conducted with extreme accuracy, using the proper techniques and procedures. For this reason the veterinary assistant may not actually conduct the tests, but if he should do so, full attention and utmost care should be given to the job at hand.

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Laboratory Aids

TOPIC: Principles of Urine Examinations

OBJECTIVE: To learn the general principles and methods of urinalysis.

REFERENCE: Required:

Information Sheet, "Principles of Urine Examinations"

QUESTIONS or ACTIVITIES:

1. Name the three general procedures of urinalysis.
2. List 3 methods of collecting urine from cows.
3. What are methods of collecting urine from dogs and cats?
4. What does the physical examination of urine include?
5. What is the normal color of urine?
6. What are the degrees of transparency?
7. What is meant by the reaction of the urine?
8. How are the sediments in the urine classed?
9. What is included in the organized sediments?
10. How can the unorganized sediment crystals be classed?

Information Sheet
on
PRINCIPLES OF URINE EXAMINATIONS

Several tests of urine can be used in the veterinary clinic that are very helpful to the veterinarian in making or confirming a diagnosis. The procedures of urinalysis or examination of urine include physical, chemical, and microscopic examinations.

Urine samples for examination purposes may be collected by various methods. Regardless of the method used, a clean container free from foreign material should be used to collect the urine. Cattle very often will urinate during examination so a suitable container should be readily available during the examination. Continuous stroking of the skin just below the vulva of cows will usually induce urination. A catheter may be passed into the bladder of the cow if necessary. Since bulls or steers cannot be catheterized, longer observation may be needed to obtain a sample. A rubber collecting urinal may be strapped on male cattle, sheep, or goats to obtain a sample. Catheters can be used on both male and female horses, but with male horses, manual pressure on the bladder via the rectum will sometimes induce urination. Close observation will enable collection from some female dogs and cats, but catheterization can be used successfully. Other collection methods from dogs and cats include applying pressure on the bladder and using a collection cage (with floor drain).

The physical examination of urine usually includes quantity, specific gravity, color,odor, consistency, and transparency. The quantity measurement refers to the amount urinated in a 24-hour period so this cannot be accurately determined without a collection cage or a receptacle attached to the animal. The specific gravity is measured with a urinometer (hydrometer) after filling a urinometer cylinder with the urine. Small and large urinometers and cylinders are available; the small size being more convenient for a small amount of urine. A change from the normal color, light yellow to dark amber, to a red, brownish red, or black color is important in diagnosis. The odor and consistency of the urine can be used by the trained veterinarian in his determinations. Normal urine from horses is usually cloudy to opaque but that from other animals is usually clear when collected. The transparency is usually noted by these degrees: clear, cloudy, flocculent, and opaque.

Chemical examination of urine includes reaction (pH - degree of acidity or alkalinity), tests for albumin, sugar, bile, acetone, calcium, bilirubin, and urobilinogen. Simple field test kits are available for field urinalysis. All tests and procedures should be learned and conducted under the direct supervision of the veterinarian.

Principles of Urine Examinations
(Information Sheet continued)

Microscopic examination of urinary sediment is done after centrifugation of a urine sample. The sediments in the urine are classed as organized and unorganized. Organized sediments include epithelial cells, blood cells, mucous threads, and micro-organisms such as bacteria, yeasts, and fungi. Unorganized sediments include fat globules and precipitated crystals. The crystals can be classed as those present in alkaline urine and those in acid urine. Fat globules may be present in urine of either reaction.

All procedures of collecting and examining urine must be carried out carefully and all results of the tests should be interpreted by the veterinarian.

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Clinical Signs of Common Diseases

TOPIC: Bacterial Diseases

OBJECTIVE: To become familiar with the causes, transmission, and symptoms of common bacterial diseases affecting livestock and fowls.

REFERENCES: Required:

1. Stockman's Handbook, Ensminger, pp. 432-487
2. Livestock & Poultry Production, Bundy & Diggins, pp. 627-639

QUESTIONS or ACTIVITIES:

1. What are the visible signs of anthrax?
2. Summarize the symptoms of blackleg.
3. What is the most characteristic sign of brucellosis?
4. Describe the feces from the severe diarrhea cuased by calf scours.
5. What disease is often confused with erysipelas and what are the symptoms of the diseases?
6. List the symptoms and other names for circling disease.
7. Distemper or strangles in horses shows what signs?
8. What animals does enterotoxemia affect?
9. Glanders affects what parts of the horse's body?
10. List the usual signs of leptospirosis in cattle.
11. Evidences of mastitis include what?
12. Navel infection affects what age animals and has what visible symptoms?
13. What may cause pinkeye in cattle, sheep, and goats?

UNIT: Clinical Signs of Common Diseases
TOPIC: Bacterial Diseases
(Assignment Sheet continued)

14. The visible signs of pneumonia and shipping fever show in what system of the body?

15. Pullorum affects what age chicks or poults and shows what symptoms?

16. Chronic respiratory disease infectious sinusitis, and roup affect what system of the fowl's body?

17. Study and become familiar with the symptoms of enteritis, tetanus, tuberculosis, fowl cholera, blue comb, and typhoid.

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Clinical Signs of Common Diseases

TOPIC: Virus Diseases

OBJECTIVE: To become familiar with the causes, transmission, and symptoms of common virus diseases affecting livestock and fowls.

REFERENCES: Required:

1. Stockman's Handbook, Ensminger, pp. 440-493
2. Livestock & Poultry Production, Bundy & Diggins, pp. 627-639

QUESTIONS or ACTIVITIES:

1. Blue tongue develops what symptoms in sheep?
2. What is the best prevention program for hog cholera?
3. Cow pox is evidenced by what visible signs?
4. What is the common name for equine encephalomyelitis and what are the symptoms?
5. What animals are susceptible to foot-and-mouth disease?
6. Rabies may be in what two forms?
7. List the symptoms of soremouth.
8. Animals with swine influenza exhibit what symptoms?
9. Transmissable gastroenteritis is characterized by what visible signs?
10. Vesicular exanthema causes symptoms similar to what other disease?
11. Where may warts appear on an animal's body?
12. What are symptoms of Newcastle disease?
13. Bronchitis has symptoms similar to what other diseases?

UNIT: Clinical Signs of Common Diseases
TOPIC: Virus Diseases
(Assignment Sheet continued)

14. Larygotracheitis affects what parts of the bird?

15. Leukosis symptoms of the range paralysis and gray-eye forms include what?

16. Fowl pox shows up in what two forms?

17. Study the characteristics of equine infectious anemia, equine influenze, virus pneumonia, and scrapie.

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Clinical Signs of Common Diseases

TOPIC: Parasitic Diseases

OBJECTIVE: To learn to recognize the signs of infestation of common parasites in livestock and poultry and to become familiar with names of common parasites.

REFERENCES: Required:

1. Stockman's Handbook, Ensminger, pp. 494-531
2. Livestock and Poultry Production, Bundy and Diggins, pp. 637-641

QUESTIONS or ACTIVITIES:

1. What are visible signs of anaplasmosis in mature cattle?
2. What are the visible symptoms of cattle tick fever?
3. List the symptoms of coccidiosis.
4. When are grubs in the back of animals and of what insect are they the larval stage?
5. What are common symptoms of most intestinal and stomach worms?
6. What are signs of sheep bots?
7. List the signs of infestation of ascarids in swine.
8. Describe the visible symptoms of dourine.
9. An infestation of pinworms in horses results in what symptoms?
10. What are symptoms of strongyles?
11. List the common symptoms of blackhead in turkeys.
12. What are the two most serious internal and external parasites of poultry?
13. Study the life cycle and habits of the horn fly, stablefly, liver fluke, tapeworm, lungworm, lice, and mites.

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Clinical Signs of Common Diseases

TOPIC: Nutritional Diseases

OBJECTIVE: To learn common terminology and symptoms of important nutritional diseases and disorders.

REFERENCE: Required:

Stockman's Handbook, Ensminger, pp. 434-493

QUESTIONS or ACTIVITIES:

1. What is the common cause of anemia and what are its symptoms?
2. Bloat in animals is indicated by what?
3. List signs of colic in horses.
4. What vitamin deficiency may cause swine enteritis?
5. Founder is shown by what symptoms?
6. List the symptoms of grass tetany.
7. Heaves in horses is indicated by what?
8. What is the common name of hypoglycemia and what are the symptoms?
9. An iodine deficiency resultsin what symptoms?
10. When does ketosis normally occur in cattle and sheep?
11. Milk fever occurs when and what are characteristic symptoms?
12. Osteomalacia may be caused by what?
13. Periodic ophthalmia results in what?
14. Rickets is a disease of what type animals?
15. What are differences in the causes of salt deficiency and salt sick?

UNIT: Clinical Signs of Common Diseases
TOPIC: Nutritional Diseases
(Assignment Sheet continued)

16. Stiff lamb disease is associated with what deficiencies and is commonly called what?

17. Study the symptoms of Vitamin A deficiency and X-Disease.

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Clinical Signs of Common Diseases

TOPIC: Fungal and Miscellaneous Diseases

OBJECTIVE: To learn visible symptoms of the common fungal and miscellaneous diseases affecting animals.

REFERENCE: Required:

Stockman's Handbook, Ensminger, pp. 436-466 and 500

QUESTIONS or ACTIVITIES:

1. List symptoms of atrophic rhinitis in swine.
2. What are visible symptoms of calf diptheria?
3. Edema disease of seine affects what type of pigs which display what symptoms?
4. Animals with foot rot exhibit what symptoms?
5. Describe the symptoms of lumpy jaw.
6. How does wooden tongue affect the animal?
7. Describe the fungal, parasitic disease, ringworm.

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Clinical Signs of Common Diseases

TOPIC: Reproductive Problems

OBJECTIVE: To learn common terminology, causes, and signs of common reproductive problems in livestock.

REFERENCE: Required:

Beef Cattle Science, Ensminger, pp. 250-279

QUESTIONS or ACTIVITIES:

1. How can sterility be defined and what does it result from?
2. What are the 6 common causes of sterility and delayed breeding in cows?
3. List the most common specific genital diseases.
4. What are 5 management and feeding factors related to breeding efficiency?
5. Physiological and endocrine disturbances include what?
6. Name 2 inherited or genetic abnormalities.
7. What is a freemartin heifer?
8. How can the fertility of a bull be evaluated?
9. List the 4 main criteria of semen quality.
10. Define cryptorchid.

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Animal Nutrition

TOPIC: Essential Food Nutrients

OBJECTIVE: To learn common terminology and the principles of supplying the essential food nutrients to all animals.

REFERENCE: Required:

Livestock and Poultry Production, Bundy and Diggins, pp. 1-12

QUESTIONS or ACTIVITIES:

1. Name the six food nutrients.
2. Describe the two groups of carbohydrates.
3. What is the difference in the chemical composition of carbohydrates, fats, and proteins?
4. Discuss the amino acids needed by ruminants and non-ruminants.
5. List the major minerals and trace minerals.
6. List eight feed additives.
7. What are the functions of carbohydrates, fats, and proteins?
8. Define digestible nutrient, rations, and balanced ration.

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Animal Nutrition

TOPIC: Classes of Feeds

OBJECTIVE: To learn the composition and classification of feeds and common terminology used in feeding livestock.

REFERENCE: Required:

Livestock and Poultry Production, Bundy and Diggins, pp. 13-29

QUESTIONS or ACTIVITIES:

1. What are the two general classes of feeds?
2. How do roughages and concentrates differ?
3. How do legume roughages differ from other roughages?
4. What is considered a protein concentrate?
5. How are protein concentrates classified?
6. What are the three common sources of carbohydrates?
7. List sources of fats.
8. How can urea furnish amino acids?
9. What vitamins are likely to be deficient in feeds?
10. What common mineral supplements are used to furnish calcium and phosphorus?
11. The nutrient value of feeds depend on what six factors?

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Animal Nutrition

TOPIC: Digestion, Absorption, and Use of Nutrients

OBJECTIVE: To learn the steps in the digestion and absorption processes and the use of the various nutrients in the animal body.

REFERENCE: Required:

Information Sheet," Digestion, Absorption, and Use of Nutrients."

QUESTIONS or ACTIVITIES:

1. What is meant by "digestion process"?
2. What two things are accomplished by chewing?
3. What is an enzyme?
4. What digestion occurs in the mouth?
5. Define rumination.
6. Most starches and compound sugars are digested where and by what enzymes?
7. Where is the digestion of protein started?
8. Fats are emulsified by what?
9. Where does most absorption of nutrients occur?
10. What nutrients can be used as heat and energy and to lay on body fat?

Information Sheet
on
DIGESTION, ABSORPTION AND USE OF NUTRIENTS

Before being absorbed from the digestive tract, food must undergo extensive changes known as digestion.

The process of digestion includes all the changes which food undergoes within the digestive tract to prepare it for absorption and use in the body.

1. Broken into small particles by mechanical means (chewing) so that a large surface will be exposed to the action of the digestive juices.

2. In ruminants, movements and churning action ofthe compartments of the stomach aid in mixing, softening the food, and even breaking it apart.

3. Chemical breakdowns are produced by enzymes of the digestive juices.

4. In herbage-eating animals, micro-organisms aid in digestion of the fiber.

5. The gastric juice containing hydrochloric acid aids digestion in the stomach.

6. Pancreatic and intestinal juices and bile are important in the small intestine.

As most changes in digestion are brought about by enzymes, their general nature should be understood.

1. Enzymes are organic compounds that break down other organic compounds without themselves changing.

2. All enzymes isolated and studied are proteins.

3. Each of the enzymes of digestion acts only on one of the group of nutrients.

The mastication (chewing) process includes the following:

1. Food is crushed and ground by the teeth, and moistened by the saliva so it can be readily swallowed.

2. Very little digestion is done in the mouth. Ptyalin, an enzyme in saliva, changes starch which is insoluble into maltose which is soluble.

Rumination Process:

1. The ruminant chews solid food just enough so that it can be swallowed and be passed to the rumen.
2. After its appetite is satisfied, the animal then proceeds to "chew its cud" or ruminate.

Digestion, Absorption and Use of Nutrients
(Information Sheet continued)

3. The food is regurgitated from the rumen back into the mouth. The liquid portion is immediately swallowed and the solid food is rechewed. (whole kernels of grain that were not chewed when first swallowed are regurgitated only if they are entangled in the roughage. Therefore, these kernels may pass through the digestive tract without being digested.)
4. After thorough mastication, the food passes back to the rumen.

Digestion and Absorption of Carbohydrates:

Cellulose - Broken into starches and sugars by bacteria in the first three compartments of the stomach of ruminants, caecum of horses, and to a lesser degree in the large intestine of other animals.

Starches and Sugars:

1. Begins in the mouth with ptyalin in saliva breaking down starches to maltose.
2. Most are carried to small intestine where starches are changed to maltose by amylase, an enzyme in the pancreatic juice.
3. Compound sugars are split into simple sugars by action of the invertases, enzymes in the intestinal juice.
4. Simple sugars are absorbed by the villi of small intestine. They then pass into the veins and are carried in the blood stream to the liver.
5. In the liver, the simple sugars are drawn from the blood and temporarily stored in the form of glycogen (animal starch). The glycogen is gradually changed back to glucose and given out gradually to the blood.

Digestion and Absorption of Protein:

1. First attacked in the stomach (abomasum of ruminants) by pepsin, enzyme in gastric juice, which partially digests them to peptone and proteose.
2. Further digested in small intestine by trypsin and erepsin, enzymes in pancreatic and intestinal juices.
3. Practically all protein is broken down into amino acids which are soluble and are absorbed by the villi in the small intestine.
4. In suckling animals, rennin, an enzyme in gastric juice, curdles milk so it will not pass too rapidly through the stomach and escape digestion.

Digestion and Absorption of Fats:

1. Fats undergo no digestion until they reach the small intestine.
2. Emulsified or broken up into small droplets by bile from the liver.
3. Lipase, enzyme in pancreatic juice, splits fats into fatty acids and glycerin.
4. Fatty acids unite with alkalies to form soaps.

Digestion, Absorption and Use of Nutrients
(Information Sheet continued)

5. Soaps and glycerin are absorbed by the villi.
6. In the villi, the glycerin and soaps are reunited to form fats which enter into blood circulation.

Digestion and Absorption of Minerals, Vitamins, and Water:

1. Minerals not soluble are dissolved by hydrochloric acid in gastric juice of stomach.
2. Minerals are absorbed chiefly in small intestine.
3. Little is known about how vitamins are digested and absorbed except some are water soluble and some are fat soluble.
4. Water requires no digestion and is absorbed along the digestive tract, chiefly in small intestine.

Uses of Nutrients in the Body:

Sugars - source of heat and energy, milk sugar (lactose) in milk and can be changed into body fat.

Fats - source of heat and energy and can form body fat.

Protein (amino acids) - body repair and bulding of new tissues (growth and fattening)

Excess protein - the nitrogen is split from amino acids in the liver, and goes to urine as waste.

Non-nitrogenous parts of amino acids can be used for heat and energy, and changed into body fat.

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Animal Nutrition

TOPIC: Feeding Standards for Farm Animals

OBJECTIVE: To develop an understanding of feeding standards and feed analysis tables and how they are used in livestock feeding.

INTRODUCTION: Feeding standards are tables stating the amounts of nutrients which, it is believed, should be provided in rations for farm animals of the various ages and classes in order to secure the best results. The standards must not be regarded as fixed rules but merely intended to enable a feeder to start with well balanced rations.

REFERENCES: Required:

1. Stockman's Handbook, Ensminger, 3rd Edition, pp. 54-55, 60, 62-65, 70, 148-163, Table 2-29, Beef - pp. 54-55, Sheep - pp. 60, Swine - pp. 62-65, Horses - pp. 70

2. Feeds and Feeding, Morrison, 8th Edition, abridged, pp. 151-153, 577-582, 516-561, Table I- Appendix

QUESTIONS or ACTIVITIES:

1. What is a feeding standard?

2. What things must be known before using a feeding standard?

3. Give the requirements using Feeds and Feeding, for a growing dairy heifer weighing 500 lbs. (Digestible Protein and Total Digestible Nutrients).

4. Give the requirements for feeding a 900 lb. pregnant cow, through the winter.

5. What is a Feed Analysis Table?

6. What value is a Feed Analysis Table?

7. What information must you have to use a Feed Analysis Table?

8. What are the 4 main items on a Feed Analysis Table?

9. Give the digestible protein and dry matter percent for corn, dent, all analysis, grade No. 2 (Stockman's Handbook)

UNIT: Animal Nutrition
TOPIC: Feeding Standards for Farm Animals
(Assignment Sheet continued)

10. What is the amount of digestible protein and total digestible nutrients in Bermuda grass hay? (Feed and Feeding)

11. Give the dry matter in alfalfa hay, sun cured. (Using Stockman's Handbook)

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Animal Nutrition

TOPIC: Factors to consider in formulating feeds

OBJECITVE: To develop an understanding of the various factors to consider when formulating feeds, regardless of the class of livestock.

INTRODUCTION: Regardless of the animal involved, certain basic factors must be considered in formulating feeds. The goal in any case is a balanced ration which will supply all the basic nutrients of sufficient quality and in the proper amounts.

REFERENCES: Required:

1. Information Sheet, " Factors to Consider in Formulating Feeds"
2. Feeds and Feeding, 8th Edition, abridged, pp. 148-150
3. Stockman's Handbook, 3rd Edition, pp. 71-72

QUESTIONS or ACTIVITIES:

1. Why do animals on pasture need more total digestible nutrients than one that is in confinement most of the time?
2. Are protein rich feeds higher in cost than feeds low in protein?
3. Does palatability of a ration aid an animal to produce more? How?
4. From the standpoint of profit, what is the most important factor in formulating feeds:
5. What is a balanced ration?
6. What 2 things will not substitute for figures in formulating feeds?
7. Name 2 examples of feed additives.
8. What enables ruminants to make proper use of roughages and low quality proteins?

Information Sheet
on
FACTORS TO CONSIDER IN FORMULATING FEEDS

The factors to consider when formulating feeds are:

1. Protein - Protein is frequently the most limited nutrient in a ration. All essential amino acids must be supplied. Limiting nutrients can be compared to the amount of water in a stave barrel. The barrel will hold only the amount up to the shortest stave, regardless the length of other staves. Quality of protein becomes a limiting factor when less nutritious feeds are the total ration.

2. Cost - When formulating rations, the lowest cost protein feeds, to supply the need should be used. The mixture should still be palatable and contain adequate amounts of other nutrients.

3. Variety - Variety in the feeds used in a ration brings about a more palatable mixture, however, it is not always the most economical.

4. Palatability - A balanced ration will not supply the nutrient requirement needs of an animal that does not eat the mixture. Quality of feed, storage, age and feeding methods are several factors that may alter palatability.

5. Fiber Content - Caution must be taken to insure that a ration is not too bulky or containing too much fiber. Young animals, swine and poultry must have less fiber, where horses or dairy animals and beef animals may take more fiber.

6. Mineral Content - Make sure animals are being fed the required minerals, or see that they are provided in a ration.

7. Vitamin Content - Rations, if properly balanced, generally contain adequate vitamin content, however, young animals, chicks or cattle on poor winter rations need their rations fortified with vitamin D or A.

8. Energy Content - Balanced rations normally contain enough carbohydrates and fats necessary, however, special attention may be necessary for high-producing cows as well as high-producing,laying hens. This is also true with horses used excessively on the range or track.

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Animal Nutrition

TOPIC: Common Methods of Balancing Rations

OBJECTIVE: To develop an understanding of the two common methods of balancing rations.

INTRODUCTION: After a person has an understanding of the feeding standards and feed analysis tables, and the factors to consider in formulating feeds, he must determine the best method of combining the proper kinds of feeds in the proper amounts to economically supply the needs of the animal.

There are two common methods used in balancing rations; the "Total Digestible Protein" method, and the "Square" method.

The remainder of this assignment will attempt to explain the two methods.

REFERENCES: Required:

1. Feeds and Feeding, Morrison, 8th Edution, abridged, pp. 140-148
2. Stockman's Handbook, Ensminger, 3rd Edition, pp. 72-82

QUESTIONS or ACTIVITIES:

1. What are the 2 most common methods for balancing rations?
2. Give 4 advantages of the "Square" method.
3. Which one nutrient receives major attention by the "Square" method?
4. What 2 things must be available before balancing rations by either method?
5. Why does the "Total Digestible Nutrient" method more completely supply the needs of an animal?
6. What is the "Handy Feeding Recommendations"?

UNIT: Animal Nutrition
TOPIC: Common Methods of Balancing Rations
(Assignment Sheet continued)

7. Develop a 15% protein ration of corn and cob meal and cottonseed meal for a 400 lb. baby beef.

8. Balance a ration for a 500 lb. dairy heifer requiring .81-.92 lbs. of Digestible Protein and 6.9-8.1 lbs. of Total Digestible nutrients. Use the following feeds:
   a. Corn and cob meal
   b. Wheat bran
   c. Cotton seed meal

   Heifer has free choice good grass hay.

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Miscellaneous

TOPIC: Controlling Rodents and Birds

OBJECTIVE: To learn principles and effective methods of controlling rodents and birds in and around the veterinary clinic.

REFERENCE: Required:

Stockman's Handbook, Ensminger, pp. 355-362

QUESTIONS or ACTIVITIES:

1. Why should rodents and birds be controlled?
2. What are anticoagulants and what are some examples?
3. How long does it take anticoagulants to kill rats?
4. How can children, pets, and animals be protected from the poison bait?
5. How often should bait stations be checked for refilling?
6. How can the presence of rats at bait stations be detected?
7. Cleaning up the premises to control rats includes what?
8. List methods of rat-proofing buildings.
9. What are differences in using anticoagulants to control mice?
10. What are the two methods of controlling pocket gophers?
11. What poison agents are used to control ground squirrels?
12. Most bird problems will be caused by what types of birds?
13. List methods of controlling birds

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Miscellaneous

TOPIC: Maintenance and Painting Procedures

OBJECTIVE: To learn common principles and methods of maintenance and painting procedures.

REFERENCE: Required:

Stockman's Handbook, Ensminger, pp. 417-424

QUESTIONS or ACTIVITIES:

1. What are the purposes of painting?
2. What determines the amount of paint needed?
3. List ingredients for a whitewash.
4. What are two requisites of a durable paint job?
5. What are considered to be warm and cool colors?
6. When should new lumber be painted?
7. Repainting old work should be done when?
8. List steps in preparing surface for painting.
9. How can old paint be removed from a surface?
10. What should be used to clean paint brushes?

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT:	Miscellaneous
TOPIC:	Fence Building Principles
OBJECTIVE:	To learn the common principles and methods of constructing fences.
REFERENCE:	Required: Stockman's Handbook, Ensminger, pp. 408-417

QUESTIONS or ACTIVITIES:

1. What should be considered in determining type of fencing to use?
2. How are the standard woven wire fences designated?
3. What size meshes are available in woven wire?
4. What gauges of woven wire are available?
5. What are the standard size rolls or spools of woven and barbed wire?
6. What are advantages of metal posts over wood posts?
7. How deep should corner and gate posts be set?
8. List spacing of line posts for pasture or field fence and corral fence.
9. What is the most important requirement of a neat and long-lasting fence?
10. What can be used to determine if woven wire is stretched properly?
11. What is the rule of thumb for correct height of an electric fence?

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Miscellaneous

TOPIC: Mixing Concrete

OBJECTIVE: To learn the importance and methods of properly mixing and placing concrete and the measurements and terminology used.

REFERENCE: Required:

Stockman's Handbook, Ensminger, pp. 404-408

QUESTIONS or ACTIVITIES:

1. How are concrete mixes designated?
2. What two ingredients determine the quality of concrete?
3. What is the general recommendation of water cement ratio for most jobs?
4. Why is the amount of moisture in the sand important?
5. How is the moisture content of sand determined?
6. How are cement, sand, and gravel measured?
7. How is quality concrete produced?
8. How should adjustment of the mix be made?
9. Each cubic yard of concrete with a six gallon water-content ration requires how much of each ingredient?
10. When mixing by hand, what two ingredients are mixed first?
11. What is needed for proper curing of concrete?
12. How is the cement content specified in ready-mixed concrete?

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Miscellaneous

TOPIC: Weed and Brush Control

OBJECTIVE: To learn the principles and methods of weed and brush control with emphasis on chemical control.

REFERENCE: Required:

Stockman's Handbook, Ensminger, pp. 349-355

QUESTIONS or ACTIVITIES:

1. What is a weed?
2. Define an annual plant.
3. What is a perennial?
4. What does the success of using a chemical weed killer depend on?
5. List precautions in using chemicals.
6. What type weeds will 2, 4-D control?
7. What type plants will 2, 4, 5-T control?
8. Delapon is used effectively on what plants?
9. List chemicals that are soil sterilants.

Assignment Sheet
for
VETERINARY ASSISTANT

UNIT: Research Problems

TOPIC: Locating and Using Reference Materials

OBJECTIVE: To develop the ability to locate and use reference materials in seeking solutions to problems related to the veterinary profession.

INTRODUCTION: It is recognized that an individual cannot learn or retain all of the knowledge that is needed to provide solutions to all questions and problems that may arise. This necessitates the development of the ability to find the solutions to problems which are confronted from time to time. This assignment will require several class periods to complete and will have no reference material listed. It is the responsibility of the student to locate the materials which may be found in the vocational agriculture library, school or city library, magazines, or any other source to which the student has access.

PROBLEMS or ACTIVITIES:

I. Outline the need, beginning, development, procedures and methods, and results of:

1. Screwworm Eradication Program in the Southwest
2. Systemic Insecticides
3. Rabies Control Program
4. SPF Swine Program
5. Brucellosis Control Program
6. Hog Cholera Control Program
7. Foot-and-Mouth Disease Eradication Program
8. Anthrax Control Program
9. Bovine Tuberculosis Control Program
10. Pullorum Control Program

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Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Introduction

TOPIC: The Profession of Veterinary Medicine

1. Five to seven years

2. Eighteen

3. No, he must comply with state license requirements.

4. General, Small Animal, Large Animal
   Specialize with one animal

5. a. Public Health Inspection
   b. Wildlife Government Agencies
   c. Circuses and Zoos
   d. Research
   e. Teaching

Answer Sheet for Test
on
THE PROFESSION OF VETERINARY MEDICINE

1. False
2. False
3. True
4. True
5. False

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Introduction

TOPIC: The Veterinarian Assistant

1. By catching up on latest information in journals, periodicals and other important matters not directly related to his practice.
2. Non-Professional and Professional assistance
3. a. Office and clinic management
   b. Kennel and cage management
4. For the welfare of the patient and the proper relationship of the veterinarian and the patient's owner
5. See list on information sheet.
6. Read carefully.

Answer Sheet for Test
on
VETERINARIAN ASSISTANT

1. Routine and non-professional
2. Cleaning and maintenance
3. Very important duty
4. Cleaning and sanitation
5. Examinations and operations
6. See list in information sheet.

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Introduction

TOPIC: Safety On The Job

1. Physical, chemical, diseases and infections, toxicity, drugs, residues, laboratory
2. Animals and equipment
3. According to the directions and precautions of the manufacturer
4. Improper cleaning, disinfection, and sterilization
5. Toxicity and residue build up (residual effects)
6. Accuracy in laboratory tests
   Proper use and development of x-rays

Answer Sheet for Test
on
SAFETY ON THE JOB

1. Physical, chemical diseases and infections, toxicity, drugs, residues, laboratory

2. Biting and scratching

3. Force, electrical shock, burns, lacerations

4. Contraction of disease or infection from patient
   Spread of disease or infection

5. Toxicity

6. Laboratory

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Office Management

TOPIC: Routine Office Work

1. It will be important in the relationship of the veterinarian and the public.

2. To enable him to give a summary of the reason for the call to the doctor.

3. See list in information sheet.

4. Not to offend the client
   Not to injure the animal

5. 1. Business records
   2. Patient records
   3. Mailing reminder notices
   4. Office supplies
   5. Operating equipment
   6. Making coffee
   7. Doctor's schedule
   8. Answering telephone
   9. Operating two-way radio
   10. Mail and laundry pick-up and delivery

6. Use equipment at school if available.
   Use equipment on job as time permits.

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Answer Sheet for Test
on
ROUTINE OFFICE WORK

1. T
2. F
3. F
4. F
5. F
6. F
7. T
8. T
9. F
10. F

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Office Management

TOPIC: Telephone Courtesy

1. To save much time for the veterinarian

2. Alertness, Expression, Naturalness, Pleasantness, Modulation, Calmness

3. To calm a nervous or upset caller
   To obtain all of the facts about the call

4. To enable assistant to write down name of caller and other information without having the caller wait

5. To show him you are interested in his call and to help you remember the name

6. To save time and to prevent the caller from having to wait a long period of time

Answer Sheet for Test
on
TELEPHONE COURTESY

PART I:

1. F
2. T
3. F
4. F
5. F

PART II:

1. Good judgement and tact
2. Promptly
3. Pad and pen
4. The person's name
5. Courteous, thoughtful

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Office Management

TOPIC: Two-Way Radio Operation

1. One base unit and at least one mobile unit

2. By the call number of the specific permit

3. To filter out noise to quite the receiver when there is no signal present
   It is set by turning clockwise until the noise disappears.

4. To avoid cutting out another message

5. a. Federal Communications Commission requirements
   b. Emergency servicing
   c. Preventive maintenance

6. Bettery
   Generator or alternator
   Voltage regulator

7. Connections
   Mounting screws
   Battery cables and all terminals
   Dust accumulation
   Voltage from power source

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Answer Sheet for Test
on
TWO-WAY RADIO OPERATION

1. In advance

2. Complete, basic knowledge

3. Federal Communications Commission

4. Carrier Wave

5. Second or two

6. Slowly and distinctly

7. Choppy and distorted

8. Annually for frequency deviation, modulation, and power input

9. Because extremes of high and low voltage can be harmful to performance and life of the unit.

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Kennel and Cage Management

TOPIC: Caring for Patients

1. Regular feeding
   Proper kind and amount of food
   Keeping records on individual animals
   Food supply inventory

2. Heavy duty reusable
   Light weight, disposable aluminum
   Light weight, disposable paper

3. As prescribed by the veterinarian

4. Not to frighten, excite, or injure animals

5. Close observation
   Taking temperature
   Pulse and breathing rates
   Collecting fecal and urine samples
   Keeping records

6. Close observation and good judgement

7. See list in information sheet.

Answer Sheet for Test
on
CARING FOR PATIENTS

PART I:

1. Appetite and bowel movement
2. Veterinarian
3. Fresh water
4. Trimming and grooming
5. Examined closely

PART II:

1. False
2. False
3. True
4. True
5. False

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Kennel and Cage Management

TOPIC: Cleaning and Disinfection

1. The types of cages and equipment and the available water supply

2. At least once daily

3. Thorough cleaning

4. See list in information sheet.

5. An agent which is intended to destroy micro-organisms on inanimate surfaces

6. Disinfectant - On inanimate surfaces
   Antiseptic - On living tissue

7. a. Thorough cleaning with a good detergent germicide
   b. Very close adherence to the manufacturer's directions
   c. The temperature - most are more effective if hot
   d. Thoroughness of application and time of exposure

8. Sunlight
   Heat-burning
   Boiling
   Steam

9. Synthetic phenols

10. See Table 8-11 in "Stockman's Handbook", Ensminger, pp. 555 and 555.

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Answer Sheet for Test
on
CLEANING AND DISINFECTING

PART I:

1. An agent which is intended to destroy micro-organisms on inanimate surfaces
2. Organism
3. See list in information sheet.
4. Living tissue
5. a. Thorough cleaning
   b. Temperature
   c. Following directions
   d. Thorough application

PART II:

1. False
2. True
3. True
4. False
5. False

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Kennel and Cage Management

TOPIC: Temperature, Pulse Rates, and Breathing Rates

1. Fever (high temperature)

2. Inserting thermometer in rectum, in vagina in special cases, under wing of fowls

3. At least three minutes

4. Stable or outside temperature
   Exercise
   Excitement

5. Cattle - Outside of jaw just above its lower border. On soft place above the inner dewclaw. Just above the hock joint.
   Sheep and Swine - On inside of thigh.
   Horse - At margin of jaw. Inside of elbow. Under the tail.

6. Younger, smaller, and nervous animals

7. Placing hand on flank
   Observing the rise and fall of flanks
   In the winter, by watching breath condensate coming from the nostrils.

8. See Table 8-10, page 553 in "The Stockman's Handbook", by Ensminger.

Answer Sheet for Test
on
TEMPERATURE, PULSE RATES, AND BREATHING RATES

PART I:

1. False
2. False
3. True
4. True
5. True

PART II:

1. Pulse rate
2. Outside of jaw above lower border
   Soft place above inner dewclaw
   Just above the hock
3. Excitement, digestion
4. Cleaned and disinfected

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Kennel and Cage Management

TOPIC: Bedding for Animals

1. Keep animals clean and comfortable.

2. Soaks up urine - keeps floor dry
   Makes manure easier to handle
   Some types absorb plant nutrients,

3. See list in reference, page 319.

4. Study Table 6-3, page 319 in reference.

5. The amount necessary to absorb all liquids

6. When comfort and cleanliness are very important

7. a. Geneticists are breeding plants with shorter straws and stalks.
   b. More competitive uses
   c. Trend toward animal confinement

Answer Sheet for Test
on
BEDDING FOR ANIMALS

PART I:

1. Clean and comfortable
2. See list of eight, page 319 in reference.
3. Absorptive or Absorption

PART II:

1. F
2. F
3. T
4. T
5. T

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Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Assisting With Examinations And Treatments

TOPIC: Determining Age Of Animals

1. By examining the teeth and noting time of appearance and the degree of wear.

2. Temporary teeth are smaller and whiter.

3. 32 permanent, 8 of which are incisors in front of lower jaw. Central pair of incisors pinchers. Next two (one on either side) - first intermediates. Third pair (one on eithe side) - second intermediates or laterals. Outer pair-corners.

4. See Table 9-5, Stockman's Handbook, Ensminger, page 608.

5. See Table 9-6, Stockman's Handbook, Ensminger, page 609.

6. 44 teeth, 12 are incisors, 4 tusks or tushes, 4 are premolars, and 24 are molars (1/2 of each kind found in each jaw). Incisors are grouped in three pairs in each jaw and called centrals, intermediates, and corners.

7. See Table 9-7, Stockman's Handbook, Ensminger, pp. 610-611.

8. Mature male - 40 - (42 or 44 if wolf teeth are present)
   Mature female - 36 - (38 or 40 if wolf teeth are present)

Young	Mature	Teeth
12	24	Molars or grinders
12	12	Incisors
None	4	Tushes(pointed teeth in male)

9. Young to 7 years-elliptical or long from side to side. As animal becomes older, teeth become triangular. As age advances from 7 years, slant toward front.

10. The wearing surface of the cups.

11. Environment and unnatural wear

12. See Table 9-9, Stockman's Handbook, Ensminger, pp. 613-616.

13. See Figure 9-70, Stockman's Handbook, Ensminger, page 612.

Answer Sheet for Test
on
DETERMINING AGE OF ANIMALS

PART I:

1. To examine the teeth of animals of known age - practice or experience.
2. None; only the thick, hard dental pad
3. Pinchers, first intermediates, second intermediates, corners.
4. Broken mouth
5. A small pointed tooth in front of first molar

PART II:

1. True
2. True
3. True
4. True
5. True

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Assisting With Examinations and Treatments

TOPIC: Handling Animals And Common Terms

1. Stand in rear of animal and hold head steady.

2. A chute and head gate

3. To pull animal's head to one side

4. Kind, quantity, and route of injection

5. Animal's condition and type of injection

6. Subcutaneous - Injection made just under the skin
   Intravenous - Injection made into a vein

7. Plunger, barrel, needles of various sizes and types

Answer Sheet for Test
on
HANDLING ANIMALS AND COMMON TERMS

PART I:

1. Knowledge and skill
2. Minimize movement and jugular vein
3. So blood can flow normally
4. To aid veterinarian more efficiently

PART II:

1. b
2. c
3. c

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Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Assisting With Examinations And Treatments

TOPIC: Injection Procedures

1. Depends on kind and amount of solution, purpose of injection, and the animal involved
2. In cubic centimeters (c.c.)
3. Near body temperature, never higher
4. Placing in boiling water for 10 minutes
   Filling with ethyl alcohol
5. See steps in information sheet.
6. Leave needle in stopper and attach sterile needle before each injection.
7. The veterinarian
8. Heat, sunlight, age

Answer Sheet for Test
on
INJECTION PROCEDURES

PART I:

1. Cubic centimeter
2. Higher
3. Unwanted micro-organisms
4. Sharp
   Cleaned and sterilized
5. Air bubbles

PART II:

1. True
2. False
3. False
4. False
5. False

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Assisting With Examinations And Treatments

TOPIC: Applying Bandages

1. Tape

2. See list in information sheet.

3. a. Minor - Pressure bandage
   b. Major - Close or tie off vein or artery. Apply tourniquet.

4. To keep bandage in position by sticking to animal

5. Artery - In spurts corresponding to heart beat
   Vein - Steady flow of darker color

6. When serious bleeding cannot be controlled any other way

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Answer Sheet for Test
on
APPLYING BANDAGES

1. False
2. False
3. True
4. True
5. False
6. False
7. True
8. True

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Assisting With Examinations And Treatments

TOPIC: Dehorning, Castrating And Docking

1. a. Caustic stick (chemicals)
   b. Saws
   c. Tube
   d. Spoon
   e. Irons
   f. Elastrator
   g. Mechanical clippers
   h. Barnes dehorner

2. Knife - slit scrotum down each side or remove lower 1/3.
   Burdizzo - with one cord to side, clamp burdizzo 1-1/2 to 2" above testicle for a few seconds.

3. Knife, Hot chisel, Burdizzo, Elastrator, Emasculator

4. Hold pig securely, wash scrotum, make incision, remove testicle and cord.

5. a. Use caustic soda or potash in paste, stick, or lacquer.
   b. Apply when calf is 3 to 10 days old.
   c. Clip hair from around buttons, apply vaseline around area.
   d. Rub on chemical until blood appears.

6. Young calves

7. Seven to fourteen days of age

8. Crushes tissue while cutting, reducing loss of blood

9. Early enough to heal before weaning

10. About 1 year of age - A veterinarian

Answer Sheet for Test
on
DEHORNING, CASTRATING, AND DOCKING

PART I:

1. Young
2. Small herds
3. Saw
4. Elastrator
5. Proper drainage

PART II:

1. True
2. True
3. False
4. False
5. False
6. False
7. False

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Assisting With Examinations And Treatments

TOPIC: Marking Animals

1. a. Establish ownership and/or age
   b. Ascertaining ancestry - Identifying individual animals

2. a. Hide brands
   b. Earmarks
   c. Ear tags
   d. Neck chains or straps
   e. Horn brands
   f. Tattoos

3. Unsightly and lower the market value of the hide

4. On registered animals

5. a. Will remain on wool for a year
   b. Can be removed by normal scouring methods

6. By ear notching

7. Lip tattoo and photographs

Answer Sheet for Test
on
MARKING ANIMALS

PART I:

1. False
2. False
3. False
4. True
5. False

PART II:

1. Hot iron and branding fluids
2. Read
3. Crop, swallow fork, bob, over-bit, under-bit, split
4. Wattle

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Assisting With Examinations and Treatments

TOPIC: Preparing Livestock For Shipment

1. a. Excessive shrinkage
   b. Death losses
   c. Bruises
   d. Crippling
   e. Disappointing sales
   f. Dissatisfied buyers

2. States will have different regulations. These should be checked to avoid costly delays. Veterinarians are expected to know this information.

3. With young animals, long shipments, inclement weather, and when unthrifty animals are involved

4. Lightly

5. a. Scouring
   b. Excessive urination
   c. High shrinkage

6. See list on page 640 of reference.

7. Tables 11-2 through 11-9 on pp. 641-643 in reference

8. See list on page 643 of reference.

9. Cattle - 3 to 6%
   Sheep - 6 to 10%
   Hogs - 1 to 2%

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Answer Sheet for Test
on
PREPARING LIVESTOCK FOR SHIPMENT

PART I:

1. Distance of haul
2. Partitions
3. 28 hour
4. Percentage
5. Young, older

PART II:

1. True
2. True
3. True
4. True
5. False

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Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Assisting With Examinations And Treatments

TOPIC: Breeds Of Small Animals

1. Short-haired and long-haired

2. Short-haired breeds are Domestic Shorthair, Siamese, Burmese, Abyssinian, Russian Blue, and Manx. The long-haired breed is Longhair.

3. Domestic Shorthair

4. Seal Point and Blue Point

5. Persian and Angora

6. a. Sporting dogs
   b. Hounds
   c. Working dogs
   d. Terriers
   e. Toy dogs
   f. Nonsporting dogs

7. Sporting dogs

8. Working dogs

9. Toy dogs

10. Study illustrations and descriptions carefully.

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Answer Sheet for Test
on
SMALL BREEDS OF ANIMALS

1. T

2. T

3. T

4. F

5. T

6. F

7. F

8. F

9. T

10. F

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Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Man and Animal Health

TOPIC: The Battle Against Diseases

1. By importing animals from Europe
2. Cow bought by Peter Dunn in 1843 from a British ship. She introduced contagious pleuropneumonia into the United States.
3. 1883 - Veterinary Division of the Department of Agriculture was established
   1884 - Act to establish the Bureau of Animal Industry
4. Pleuropneumonia, hog cholera, sheep scab, tuberculosis, brucellosis, anthrax, blackleg, and tick fever
5. In 1892, Bureau of Animal Industry found that tick fever was carried from one animal to another by the tick.
6. Quarantining, destruction of infected and exposed herds, and cleaning and disinfection of premises
7. Development of immunizing agents
8. Dipping and quarantines
9. Accurate method of diagnosis and persistent destruction
10. Tuberculosis - 1917 - Testing and slaughtering
    Brucellosis - 1934 - Testing, slaughtering, and vaccination of young animals
11. August 30, 1890
12. Eventual eradication

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Answer Sheet to Test
on
THE BATTLE AGAINST DISEASES

1. False
2. True
3. False
4. False
5. True
6. True
7. True
8. True
9. False
10. True

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Answer Sheet
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UNIT: Man and Animal Health

TOPIC: Food and Animal Diseases

1. More than half of the three tons of food produced per family.

2. The experience of other countries.

3. At least 80.

4. Poor nutrition and high death rates.

5. About 10%.

6. By decreasing efficiency of production.

7. Concentration upon livestock production.

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931-V-2

Answer Sheet fo Test
on
FOOD AND ANIMAL DISEASES

1. Half
2. Taken for granted.
3. Animal diseases
4. Manure
5. Dangerous, detect
6. Four times
7. Disease control
8. 15

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Man And Animal Health

TOPIC: Economic Losses

1. Death, production, feed, labor, and capital investments.

2. 50%.

3. Losses in meat, hides, edible offal, and by-products.

4. Costs of controlling, combating, and preventing diseases and cost of public health protection.

5. About 80% of all livestock slaughtered commercially are processed in plants under inspection.

6. Infections and parasites, poor management, and nutritional problems.

7. Mortality, lower egg production and fertility, and inefficient use of feed.

8. Swine.

9. Damage to hides and meat, loss in weight and milk production, inefficient use of feed, and damage to wool and mohair.

Answer Sheet to Test
on
ECONOMIC LOSSES

PART I:

1. Weaning age
2. Farm operations
3. Seven
4. Affect production and quality of animal and products; waste of feed, labor, and equipment; and cost of control, treatment, and eradication

PART II:

5. True
6. True
7. False
8. True
9. True
10. False

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Man and Animal Health

TOPIC: Diseases Common to Man and Animals

1. Zoonoses
2. Viral, vickettsial, bacterial, fungal, protozoal, helminthic, and arthropod-insect
3. Bacilli of tetanus, gas gangrene, and botulism
4. Rabies
5. a. Public education
   b. Vaccination of dog population
   c. Elimination of stray dogs and some wildlife
6. Ringworm
7. By accidental ingestion of eggs
8. Bovine tuberculosis and brucellosis
9. Typhus fever and leptospirosis
10. Wild rabbits and rodents

Answer Sheet to Test
on
DISEASES COMMON TO MAN AND ANIMALS

1. One-half
2. Passive
3. Urine
4. Because of its close association with man and because of its worldwide distribution
5. Products
6. Hogs or pork
7. Avians

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Man and Animal Health

TOPIC: Parasites of Animals and Man

1. By eating food of animal host.
   By swallowing accidently from being in close contact with animals.

2. By eating raw or rare beef that contains a bladderworm (an immature stage of beef tapeworm).

3. By not eating raw or undercooked pork and by improving rural sanitation.

4. By consuming food or water contaminated with eggs and hand contamination from infested dogs.

5. Fish, rats, mice, dogs, cats, and wild animals.

6. Undercooked pork or bear meat.

7. Thorough cooking of fresh pork.

8. Dogs, cats, hogs.

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Answer Sheet for Test
on
PARASITES OF ANIMALS AND MAN

1. True
2. False
3. True
4. True
5. False
6. False
7. True
8. True

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Principles of Disease Control

TOPIC: Causes of Disease

1. Through the skin and organs of breathing, digestion, and sex

2. That state of an animal in which all of its vital processes function together harmoniously

3. Hereditary
   Physiological
   Nutritional
   Managerial

4. Live tissue or living cells

5. a. Protozoa - simple animals
   b. Platyhelminthes - tapeworms and flukes
   c. Nemathelminthes - roundworms
   d. Acanthocephala - thorn-headed worms
   e. Arthropoda - ticks, mites, and insects

6. a. Sporozoa - poultry, cattle, sheep, goats, swine, birds, wild animals, and man

   b. Flagellata - man and all livestock and poultry

   c. Ciliata - man and domestic animals

7. Severe annoyance, suck blood, destroy tissues, carry and spread diseases, and serve as hosts for internal parasites

8. Metabolic, feed, poison in feed or air, poisonous plants, chemicals, wire, nails, etc., mechanical injury, tumors

Answer Sheet to Test
on
CAUSES OF DISEASE

PART I:

1. True
2. True
3. False
4. True
5. False
6. True
7. True
8. True
9. False
10. True

PART II:

1. Health
2. Toxins
3. Flukes
   Tapeworms
   Nematodes or Roundworms
   Lungworms
   Threadworms
4. Ticks
   Mites
   Insects
5. Non-infectious

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Principles of Disease Control

TOPIC: How Diseases and Parasites and Spread

1. Ability to survive outside body until it can gain entrance to new host

2. a. Anthrax organism - spore forming bacteria
   b. Swine erysipelas organism

3. a. Infected animal eliminates organism in waste material.
   b. Through the bite of an infected animal.
   c. Through the bite of insects.
   d. Through litter, blood, milk, saliva, urine, and feces contamination
   e. Carrier animals - domestic and wild

4. a. Grazing on contaminated pastures
   b. Eating contaminated feed or hay
   c. Swallowing contaminated soil, water, insects, and other small animals
   d. Eating flesh or tissue of infected animals
   e. Being bitten by infected insects and ticks

5. a. Bringing animals with parasites to farm or ranch
   b. Using pastures without resting or rotating
   c. Placing feed on ground or floor
   d. Allowing dogs with parasites to be near

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Answer Sheet to Test
on
HOW DISEASES AND PARASITES ARE SPREAD

1. 5
2. 6
3. 1
4. 2
5. 7
6. 3
7. 8
8. 4
9. 10
10. 9

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Principles of Disease Control

TOPIC: Genetics and Disease

1. Some genetic influence operates in all of the biological phenomena of life.

2. Explains how resemblances and differences are transmitted to the next generation

3. Genetic capacity of host. Genetic capacity of the pathogen. Environment

4. Mutation

5. a. From susceptible to resistant forms to virus
   b. Resistance to antibiotics
   c. Virulence of bacteria has been altered.

6. a. Acquired immunity
   b. Natural immunity

7. Ability to form effective antibodies

8. Environmental

Answer Sheet to Test
on
GENETICS AND DISEASE

1. False
2. True
3. True
4. False
5. False
6. True
7. True
8. False
9. True
10. False

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Principles of Disease Control

TOPIC: Protection From Diseases and Parasites

1. Isolate sick animals from healthy. Increase resistance of healthy animals.

2. Transportation

3. Proving that living organisms cause disease and that they originate from other organisms

4. Grew germs of fowl cholera and produced a vaccine that would protect against the disease

5. a. Learning where infection is
   b. Prevention of any contact between healthy and infected animals or contaminated premises, feed, equipment, or vehicles

6. Burned, sterilized with heat, or buried deeply

7. By introducing infected animals into the herd

8. Vaccination

Answer Sheet for Test
on
PROTECTION FROM DISEASES AND PARASITES

PART I:

1. Slaughter
2. Hog Cholera Virus
3. Spores
4. Anthrax, rabies
5. Vaccines

PART II:

1. False
2. False
3. True
4. True
5. True
6. True

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Principles of Disease Control

TOPIC: Feeding and Management

1. Helps animal's defenses against diseases and parasites. (Keeps resistance at maximum level)

2. Cleanliness or sanitation

3. Diet high in different types of proteins

4. Lack of feed for a period may lower the level of sugar in the blood

5. a. Poor diets or insufficient amounts of good diets
   b. Gastro-intestinal disorders
   c. Parasites causing intestinal disorders

6. a. Proper feeding
   b. Housing
   c. Handling
   d. Caring for animals to maintain good condition

7. a. Overwork
   b. Faulty nutrition
   c. Improper care
   d. Extreme heat and cold
   e. Poor sanitation

8. See page 83, Stockman's Handbook, Ensminger.

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Answer Sheet to Test
on
FEEDING AND MANAGEMENT

1. False

2. True

3. True

4. False

5. True

6. True

7. False

8. True

9. True

10. True

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Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Principles of Disease Control

TOPIC: Quarantines and Eradication Programs

1. Animal Disease Eradication Division, Agriculture Research Service, U.S.D.
2. a. Segregation and confinement of animals in smallest possible area
   b. Regulating movement of animals at points of entry
3. Varies from prohibiting movement out of an area to mere physical examination and movement under proper certification
4. May 29, 1884
5. Long enough to assure freedom from disease or exposure thereto
6. See page 66, reference No. 2.
7. Brucellosis, tuberculosis or paratuberculosis, foot-and-mouth disease, pluropneumonia, rinderpest and other contagious or infectious diseases considered an emergency threatening the livestock industry
8. a. Division representative
   b. State representative
   c. Accredited veterinarian authorized to make appraisals
9. Brucellosis

Answer Sheet to Test
on
QUARANTINES AND ERADICATION PROGRAMS

1. Gaining a foothold in this country and spreading

2. Foot-and-mouth

3. Rinderpest

4. Quarantine

5. Poultry

6. Rinderpest and foot-and-mouth disease

7. Anthrax

8. Humane

9. Tuberculosis

10. Three

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Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Methods of Disease Control

TOPIC: Prevention

1. Because of new problems, new biologicals, new methods from research, etc.

2. To facilitate handling, combat the elements, and protect during births.

3. Proper drainage, dryness and ventilation, adequate space, good lighting, suitable floors, waste disposal, and absorbent bedding.

4. a. To supply oxygen
   b. Remove moisture from air
   c. Remove noxious gases

5. a. They spread diseases and parasites
   b. Damage feeds and buildings
   c. Decrease profits

6. a. Secure health certificate
   b. Isolate animals at least three weeks
   c. Clean and disinfect isolation quarters each time

7. a. Burning
   b. Burial
   c. Rendering Plant

Answer Sheet to Test
on
PREVENTION

PART I:

1. True

2. True

3. False

4. False

5. False

PART II:

1. Moist or damp

2. Generate heat

3. Infection

4. Burn

5. A veterinarian

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Answer Sheet
for
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UNIT: Methods of Disease Control

TOPIC: Treatment

1. Any effort to cure disease, arrest its course, lessen its severity, or alleviate the pain and inconvenience that disease causes.

2. a. Drugs and medicines
   b. Physical therapy
   c. Management practices

3. Direct - drug and physical treatments
   Indirect - management

4. Mouth, injection, inhalation, or direct application

5. Liquids as drenches, with dose syringe, or injection into stomach with stomach tube
   Pills, capsules, and boluses must be placed far back in the mouth

6. a. Drench going into lungs instead of stomach
   b. Stomach tubes may pass down trachea
   c. Finger or hand injuries
   d. Harm to animal from excitement and struggle

7. Massage, exercise, bandages and splints, hot and cold packs

8. Keeping animals comfortable, quiet, and free from excitement

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Answer Sheet to Test on TREATMENT

PART I:

1. Drugs and physical
2. Systemic or general
3. Side effects or side reactions
4. Salt
5. Dogs

PART II:

1. True
2. True
3. True
4. False
5. True

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Methods of Disease Control

TOPIC: Principles of Parasite Control

1. To a whole herd or flock

2. Sanitation and medication

3. Tick fever and trypanosome infections

4. Injuries, parasite-host relationship, life cycle, sources of infection and means of transmission, epizootology, bionomics, immunity, host resistance factors, and geographical distribution.

5. Preadults, adults, eggs, larvae, and embryos, in the case of parasitic worms

6. a. Adult stage of worm parasites in their hosts
   b. Egg stage of screwworms

7. Light stocking, resting and rotating pastures, stock rotation, chemical disinfection, and general sanitation

8. Warmth and moisture

9. Immediate in their effects
   Economical
   Simple

Answer Sheet to Test
on
PRINCIPLES OF PARASITE CONTROL

PART I:

1. Eradication
2. Sanitation and Medication
3. Environmental

PART II:

1. True
2. False
3. True
4. False
5. True
6. True
7. True
8. False
9. True
10. True

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Methods of Disease Control

TOPIC: Internal Parasite Control

1. Chemicals (Chemotherapeutic agents)
2. Systematic prevention programs rather than treatment
3. a. Range of application
   b. High degree of efficiency
   c. Unusual margin of safety
   d. Easy and versatile administration
   e. Variation and range of antiparasitic actions
4. Roundworms in swine
5. Poisonous if not properly administered
6. Cadmium salts and piperazine
7. Toluene
8. Lead arsenate
9. Coccidiosis
10. a. Some curative action on anaplasmosis, tick fever, and coccidiosis
    b. Reduce mortality
    c. Seem to influence protozoan and helminthic infections of man and animals
    d. Combat bacterial infections that occur in animals suffering from parasites.

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Answer Sheet to Test
on
INTERNAL PARASITE CONTROL

PART I:

1. Expensive
   Doses are bulky
   Some animals susceptible to intoxication
   Animals eliminate red dye
   Not effective on some parasites

2. Intervals

3. Cadmium salts
   Piperazine
   Toluene
   Metallic arsenates
   Sulfanomides
   Antibiotics

PART II:

1. True

2. False

3. False

4. True

5. True

5

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Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Methods of Disease Control

TOPIC: External Parasite Control

1. Arsenicals, nicotine, sulfur, cresols, rotenone, and pyrethrum

2. DDT
   Methoxychlor
   Toxaphene
   BHC
   Lindane
   Chlordane

3. That they be safe

4. Will not harm the animal
   Will not leave harmful residues in animal products

5. Rotenone - cube or derris
   Pyrethrum

6. Residue build-up
   Flies become resistant

7. Has little tendency to build up residues

8. Lindane

9. Because of chronic toxicity to livestock

10. Dieldrin, aldrin, heptachlor, perthane, strobane, malathion

Answer Sheet to Test
on
EXTERNAL PARASITE CONTROL

1. Organic
2. Cattle grubs
3. Pyrethrum
4. Toxicity
5. BHC and Lindane
6. Systemic
7. Safe, economical, and effective

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Methods of Disease Control

TOPIC: Veterinary Biological Products

1. Louis Pasteur - 1881 - Immunized sheep for anthrax

2. a. Bacteria
   b. Viruses
   c. Rickettsiae

3. Antibodies

4. a. Antiserums
   b. Antitoxins
   c. Bacterins
   d. Mixed bacterins
   e. Diagnostics
   f. Diagnostic antigens
   g. Vaccines and viruses

5. Substance that stimulates antibodies

6. Antibodies

7. Bacterin - contain one to three types of inactive bacteria
   Mixed bacterins - contain four or more inactive bacteria

8. For the detection and diagnosis of diseases

9. a. Killed-virus b. Live-virus c. Modified live-virus

10. Sterility, purity, safety, and potency

11. a. Read and follow directions carefully before using.
    b. Keep stored under refrigeration.
    c. Handle according to directions.
    d. Use products produced under a United States Veterinary License.
    e. Keep records of vaccination.
    f. Follow instructions for restoration of desicated products.
    g. Carry out recommendations of manufacturer.

Answer Sheet to Test
on
VETERINARY BIOLOGICAL PRODUCTS

1. True

2. False

3. True

4. True

5. True

6. False

7. True

8. True

9. False

10. True

11. False

12. True

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Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Methods of Disease Control

TOPIC: Disinfectants

1. Destroying disease germs - only after thorough cleaning

2. Alkaline detergents in warm water or lye (caustic soda)

3. a. Cleans
   b. Kills most micro-organisms
   c. Corrodes metal
   d. Harmful to skin

4. To give disinfectant more penetrating power

5. Temperature, acidity or alkalinity, time of exposure, concentration of disinfectant, organic matter present, or type of water used.

6. May interfere with some disinfectants because the calcium, magnesium or iron may react to reduce effects.

7. Good general disinfectants, stable and mix readily with water, destroy all bacteria except spore-forming bacteria, strong odors, non-toxic, need no special precautions.

8. Five times more germicidal than phenol.

9. Used on dairy equipment, effective on clean surfaces, cheap, non-irritating, slightly corrosive

10. Free iodine

11. Enough active iodine colors solution yellow

12. Act fast, they are wetting agents, odorless, non-irritating, non-corrosive, deodorants

Answer Sheet to Test
on
DISINFECTANTS

1. Lye
2. Organic matter
3. Quaternary ammonium
4. Warm
5. Three
6. Germicidal activity
7. Cresol or iodine
8. Hypochlorites
9. Iodine or iodophores
10. Quaternary ammonium

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Methods of Disease Control

TOPIC: Chemical Poisoning

1. Because
   a. It is often used to kill insects, parasites, weeds, and rodents.
   b. Used as tonic for animals
   c. Arsenic compounds are usually palatable to animals.

2. Abdominal pain, salivation, diarrhea, depression, weakness, incoordination, posterior paralysis, subnormal temperature

3. Ingestion of small amounts of flouride for a long time
   Use of mineral mixtures containing rock phosphate, water high in flourine, and from contaminated forage grown near industrial plants that emit flourides.

4. Bones and teeth

5. Chewing or licking lead-painted objects, paint containers, batteries, and old paint brushes and drop cloths. Grazing plants sprayed with lead compounds.

6. When grazing alfalfa or clovers in areas where molybdenum is present in soil in excessive amounts

7. a. Certain plants grown on high nitrate soils or sprayed with certain chemicals
   b. Nitrate fertilizer consumption

8. Continuous supply of salt for animals and liberal supply of water if salt-protein supplements are used

9. Ingestion of plants that have absorbed selenium from the soil.

Answer Sheet to Test
on
CHEMICAL POISONING

1. True
2. True
3. True
4. True
5. False
6. False
7. True
8. True
9. False
10. True
11. True
12. False

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Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Methods of Disease Control

TOPIC: Poisonous Plants

1. Some are poisonous only at certain seasons and under other specific conditions.

2. Western ranges
    a. Little cultivation and destruction of poisonous plants
    b. Frequent over-grazing

3. See list on page 556, reference No. 1.

4. a. Kind and amount of plant eaten
    b. Stage of plant growth
    c. Kind and amount of other feed
    d. Tolerance of animal to poison

5. See page 557, reference No. 1.

6. a. Call veterinarian.
    b. Place animal where care and treatment can be given.
    c. Protect from heat or cold.
    d. Allow only feeds that are known safe.

7. Plants that can produce hydrocyanic acid in toxic amounts

8. Organic substance like the alkalies that contain nitrogen. Found in legume, lily, buttercup, and potato families.

9. A carbohydrate formed by union of sugar and non-sugar and accompanied by the elimination of water.

10. a. Saponins
    b. Resinoids
    c. Oxalic acid
    d. Tremetol

11. Locoweed, copperweed, paperflower, horsebrush, bracken fern, eupatorium.

Answer Sheet to Test
on
POISONOUS PLANTS

1. Over-grazing
2. Veterinarian
3. Observing symptoms and/or looking at plants in pasture or identifying plants in digestive tract
4. Horses
5. Alkaloids
6. Sorghum
   Sudangrass
   Johnsongrass
7. Tremetol

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Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Methods of Disease Control

TOPIC: Toxicity of Insecticides

1. When used in large amounts, Cause blistering, excessive salivation, difficult breathing, loss of appetite, depression, and sometimes death.

2. a. All toxic effects show after absorption.
   b. Dry powders, emulsions, or wettable powders
   c. Age of animal
   d. Physical condition of animal
   e. Size of particles in emulsions
   f. Weather

3. The nervous system

4. a. Nervous
   b. Muscle twitches and spasms
   c. Abnormal positions
   d. Persistent chewing
   e. Profuse salivation
   f. Difficult breathing
   g. High temperature

5. DDT, TDE, and Methoxychlor

6. No known antidote, control convulsions or depression, remove poison, provide comfortable quarters and good feed, leave animal alone as much as possible.

7. Excessive salivation, difficult breathing, walks stiffly, muscle spasms, will eventually lie down, death appears to occur by respiratory failure.

8. Atropine given subcutaneously, intramuscularly, or intravenously,

Answer Sheet to Test
on
TOXICITY OF INSECTICIDES

1. False

2. False

3. True

4. True

5. True

6. True

7. False

8. True

9. True

10. True

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Methods of Disease Control

TOPIC: Pesticide Regulations

1. a. Animals eating feed or forage treated with pesticides
   b. From feed troughs, water fountains in barns sprayed
   c. Animals being sprayed or dusted directly

2. In fatty tissues

3. Dieldrin, aldrin, BHC, DDT, endrin, chlordane, heptachor, toxaphene, and methoxychlor

4. Miller Bill (Public Law 518) - Tolerances for residues. Federal Insecticide, Fungicide and Rodenticide Act - Provides for registration of pesticide chemicals

5. a. Rely on directions of manufacturer
   b. Using Table 8-7, page 550, reference No. 2
   c. Using mathematical formula, page 550, reference No. 2

6. See list, pp. 548 and 549, reference No. 2.

7. Ronnel - 60 days
   Ruelene - 28 days
   Co-Ral - 45 days

8. a. Do not treat animals less than three months old.
   b. Spray animals three to six months old lightly.
   c. Do not use with pyrethrins, allethrin, or synergist.
   d. Do not repeat Co-Ral dip within 45 days.

Answer Sheet to Test
on
PESTICIDE REGULATIONS

PART I:

1. True
2. False
3. True
4. True
5. False

PART II:

1. Residues
   Registration

2. Concentrations

3. 100 to 200

4. Grubs

5. Three

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Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Sterilization and Disinfection Procedures

TOPIC: Principles of Sterilization

1. Physical - sterilization
   Chemical - disinfection

2. Germicide - substance that kills germs
   Fungicide - substance that kills fungi
   Antiseptic - substance that inhibits bacterial growth

3. Fungus

4. a. Temperature needed will vary with organism involved
   b. Absence or presence of moisture
   c. Reaction (pH or acidity or alkalinity)
   d. Time of heat exposure

5. Pasteurization of milk

6. a. Steam - autoclave
   b. Boiling in water

7. $F = 9/5C. + 32$ $C = 5/9 (F-32)$

8. 104°F. and 21°C.

9. Phenol coefficient
   Toxicity index

10. Effect of a disinfectant on bacteria and on living tissue

Answer Sheet for Test
on
PRINCIPLES OF STERILIZATION

PART I:

1. Sterilization
2. Aseptic
3. Light and heat
4. Dry heat
5. Kills bacteria
   Tissue

PART II:

1. True
2. True
3. False
4. True
5. False

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Sterilization and Disinfection Procedures

TOPIC: Sterilizing Techniques

1. Soak and scrub in detergent or soap solution, rinse thoroughly, and polish dry.

2. a. Boiling in water
   b. Steam under pressure
   c. Flame
   d. Oven (dry heat)

3. a. Type of instrument
   b. Type of material
   c. Available equipment
   d. available time
   e. Personal preference

4. Steam under pressure in autoclave or pressure cooker.

5. Fifteen pounds of pressure at 121° C. or 250° F. for fifteen minutes

6. Corrosion may occur on certain instruments.

7. 175° C. for two hours

8. Instruments that might be harmed by heat.

9. Eighteen hours

Answer Sheet to Test
on
STERILIZING TECHNIQUES

1. False
2. False
3. True
4. True
5. False
6. True
7. True
8. True
9. True
10. True

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Sterilization and Disinfection Procedures

TOPIC: Preparing Hands and Field of Operation

1. Transient and resident
2. Resident
3. Scrub with brush and soap or detergent at least thirty times, for five to seven minutes, rinse well with cool, running water, dry hands with sterile towel.
4. Dry hands before applying germicide, rub germicide on hands with gauze, allow to dry slowly.
5. Disinfection will not make hands sterile.
6. With gauze or cotton
7. Because of danger of bacterial contamination from resident bacteria in the deeper portions of the skin

Answer Sheet to Test
on
PREPARING HANDS AND FIELD OF OPERATION

1. Transient and resident
2. Resident
3. Trimmed short
   clean
4. Germicide
5. Dry
6. Sterile
7. Germicide
8. Dry slowly

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Sterilization and Disinfection Procedures

TOPIC: Sterile Gloves and Gown

1. Place pad of gauze in each cuff and place on edge with thumbs up.

2. Gloves are placed in germicidal solution. Hands are forced into gloves filled with germicide allowing the germicide to be forced out.

3. a. Germicide helps to keep hands disinfected.
   b. Leaves hands in better condition after operation

4. Held by the turned-down cuff

5. The front and sides

6. Directly behind the operator

Answer Sheet to Test
on
STERILE GLOVES AND GOWN

1. Aseptic

2. Steam and air

3. 15
250
30

4. Powdered

5. Germicide

6. Outside

7. Neck

8. Collar

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Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Restraining Animals

TOPIC: Principles in Restraining Animals

1. Process of hindering or preventing action or motion.

2. Because some degree of restraint is involved in everything the veterinarian does with animals.

3. A simple, clear command or a sure hand to guide the animal firmly.

4. Thorough familiarity with animals and with an understanding of the way their minds work.

5. By intelligent observation of animals and by much experience in handling them

6. a. Do not excite or injure animal by misuse of restraint or by using unnecessary, severe methods.
   b. Do not allow animal to exhaust or injure himself by his own struggles.
   c. If restraint throws animal off balance, handler should be able to release restraint or support the animal.
   d. If animal is deliberately thrown off balance, handler should guide his fall.

7. Sedatives and anesthetics

8. a. Condition of the patient
   b. Location on his body of the work to be done
   c. The individual animal

9. Quickly and smoothly

10. a. Signs of nervousness on the part of the handler will arouse an animal's apprehension and cause difficulties.
    b. Unforeseen things can arise to change or upset a planned course of action, and good judgment is not used when handler is angry or cross.

Answer Sheet for Test
on
PRINCIPLES IN RESTRAINING ANIMALS

PART I:

1. T
2. F
3. T
4. T
5. T

PART II:

1. a. Individual animal
   b. The animal's condition
   c. Work to be done

2. Calm and deliberate

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Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Restraining Animals

TOPIC: Common Knots

1. End -short piece of rope that is being used
   Standing Part - longer piece of rope that is being used
   Bight - formed when rope is doubled
   Closed Bight or Loop - complete circle of rope

2. a. Easily tied and untied
   b. Hold firmly under strain

3. Knot - an intertwining of one or more ropes in which the pressure of the standing part of the rope alone prevents the end from slipping
   Hitch - a temporary fastening of a rope to a hook, post, or other object so that the standing part forces the end against the object with enough pressure to prevent slipping

4. a. Manila and sisal hemp are strong but will "burn" the skin of animal
   b. Cotton rope is softer and will not damage skin easily.
   c. Rope should be strong, in good working condition, and have ends that will not ravel.
   d. Rope should have an eye on one end so a loop can be quickly formed.

5. a. Whipping with a ferrule
   b. Whipping with a cord
   c. Crowning

6. Side Splice
   Eye Splice

7. a. Square knot
   b. Granny knot
   c. Surgeon's knot
   d. Reefer's knot
   e. Weaver's knot

8. a. Bowling
   b. Bowline on a bight
   c. Lark's Head knot
   d. Tomfool knot
   e. Slip knot
   f. Halter tie

9. a. Single half hitch
   b. Double half hitch

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Answer Sheet for Test
on
COMMON KNOTS

1. Overhand
2. Whipping or Crowning
3. Granny Knot
4. Surgeon's Knot
5. Bowline
6. Lark's Head
7. Tomfool
8. Slip Knot
9. Alike
10. Instructor should check results.

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Restraining Animals

TOPIC: Restraining Dogs and Giving Medication

1. a. Take care to avoid injury to dog
   b. Never surprise the dog.
   c. Talk to the dog to reassure him.
   d. Allow dog to investigate handler.
   e. Make no sudden movements.
   f. Watch for indications of the animal's mood.

2. a. Growl
   b. Slight stiffening and lifting of upper lip
   c. Partial elevation of the hair along the dog's back

3. With a snare, tongs, or strong belt

4. a. Make a loop with surgeon's knot or overhand knot.
   b. Slip loop over the nose and tighten.
   c. Tie overhand knot under the chin.
   d. Bring both ends over head behind ears and tie a square knot or reefer's knot.
   e. On short-nosed dogs bring one free end under the loop on top surface of nose, pull tight, and tie the rope ends with a reefer's knot.

5. Stand behind the dog and hold head with one hand on each side, palms below the ears, fingers around lower jaw, and thumbs meeting on the forehead.

6. a. With forearm over the top of the dog's head, grasp upper jaw at the area of no teeth with lips folded in so they, not the handler's fingers, are inside the mouth.
   b. As the upper jaw is pulled up, the forearm is pushed against head.

7. Pull out loose skin at corner of mouth and pour from a spoon or small metal or plastic container.

8. A speculum after a sedative or anesthetic is given

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Answer Sheet for Test
on
RESTRAINING DOGS AND GIVING MEDICATION

1. F
2. T
3. T
4. F
5. T
6. F
7. F
8. T
9. T
10. F

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Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Restraining Animals

TOPIC: Restraining Cats

1. Timid and apprehensive and become easily depressed and quite docile when brought into a strange environment. When being handled, depression changes quickly to apprehension, and they will struggle to avoid being confined and go into fits of rage when any pain is inflicted.

2. a. May hold the cat lightly and stroke it if the work to be done will not cause any pain
   b. Use restraint andpossible a sedative if pain will be inflicted.
   c. Anesthetize the cat for any surgery.

3. a. Availability of restraint device b. Personal preference
   c. Presence or absence of an assistant

4. With a snare or by throwing a blanket or sack over the cat and catching the head at the base of the skull

5. Because the removal of the tape is a long and annoying process.

6. a. Hold front feet with forefinger between them and hold neck down with forearm.
   b. With other hand, hold rear legs in same manner, pulling them backward.

7. a. Handler holds left forepaw and head with left hand, thumb holding paw and palm on top of head.
   b. Right arm holds body and hand holds cat's right forearm forward.

8. a. Sack-towel, cloth, or blanket
   b. Castration Box
   c. Bosshart Box
   d. Cornell Stocks
   e. Shield
   f. Steward Stocks
   g. Boxing gloves
   h. Wire screen with wooden frame

9. a. Cover body with sack, blanket, or cloth.
   b. Place hand over head and press thumb against one corner of the mouth and fingers against the other.

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Answer Sheet for Test
on
RESTRAINING CATS

1. Very slippery or Very slick

2. Rod
   Cord

3. Finger

4. Container

5. Drawstring
   Hole

6. Boxing gloves

7. Washing

8. Finger

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Restraining Animals

TOPIC: Restraining Horses

1. Twitches - Distract a horse's attention
   Hopples - Limit the movement
   Casting Harnesses - Throw and confine animal completely

2. a. Suit the horses temperament
   b. Use no more restraint than necessary
   c. Length of time for work to be done
   d. Body location of work to be done.
   e. Age and size
   f. Amount of pain to be inflicted

3. a. Twitches applied too tightly or too long may break the skin or otherwise injure the lips.
   b. They should never be used on the ears.

4. a. Web
   b. Pastern
   c. King
   d. Two-way hock
   e. English
   f. Breeding
   7. Stirrup-strap

5. Instructor should check halters after student makes them.

6. Pain diverts the horse's attention from another area.

7. a. With long piece of rope on the right, place rope against tail below the last bone.
   b. Fold tail up and over the rope.
   c. Pass end of rope behind tail and make a bight in it.
   d. Bring bight over the folded tail and pull down under the rope looped around tail.

8. To raise hoof for examination or surgery. To restrain - prevent horse from moving around or kicking with rear legs.

9. To prevent a mare from kicking a stallion. To restrain both rear legs for rectal or vaginal operation or examination.

UNIT: Restraining Animals
TOPIC: Restraining Horses
(Answer Sheet continued)

10. Cradle - prevents horse from turning or lowering his neck.
Side-Stick - prevents horse from turning his head to the rear half of his body.

11. a. Double Side-Line
b. English Hopples
c. Danish
d. Baker

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Answer Sheet for Test
on
RESTRAINING HORSES

1. T
2. T
3. T
4. T
5. T
6. T
7. T
8. F
9. F
10. F
11. F
12. F

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Restraining Animals

TOPIC: Cattle Restraint

1. To divert the attention of the animal

2. The nose lead has rope attached. The Iowa cattle leader has a handle.

3. a. Milking hopples b. Hock twitch
   c. Squeeze restraint

4. Animal may fall which could dislocate hip or cause other injuries

5. Balling gun, fetatome, oral, vaginal, or rectal speculum, and to protect stomach tube.

6. a. It is not necessary to tie rope around neck or horns.
   b. Does not put pressure over thorax
   c. Does not endanger the genital organs of a bull or mammary system of a cow.
   d. Both rear legs may be tied with the ends of casting rope.

7. a. Place loop around animal's neck, using a bowline knot.
   b. Form half-hitch just behind shoulder.
   c. Form second half-hitch in front of udder or scrotum.
   d. Pull or rope to cause animal to lie down.

Answer Sheet for Test
on
CATTLE RESTRAINT

4 a.
9 b.
10 c.
7 d.
2 e.
3 f.
8 g.
1 h.
5 i.
6 j.

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Answer Sheet
for
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UNIT: Restraining Animals

TOPIC: Catching and Restraining Swine

1. a. Hurdle
   b. Pig-catching gate
   c. Trap
   d. Pig Catcher
   e. Snare
   f. Jorgenson pig holder
   g. Iowa hog holder
   h. Rope

2. Place large feed bucket over animal's head and pull backward while another man guides his direction by pulling tail.

3. a. Snubbing rope
   b. Hog twitch
   c. Obstetrical snare
   d. Champion holder

4. Small pig is held by rear legs with head down.
   Large pig is held by front legs with head up.

5. 3/8" cotton rope through a metal ring

6. a. By hand
   b. Rope casting
   c. Rear leg hopples
   d. English hopples

7. To restrain small pigs

Answer Sheet for Test
on
CATCHING AND RESTRAINING SWINE

1. F

2. T

3. F

4. F

5. T

6. F

7. T

8. F

9. F

10. T

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Restraining Animals

TOPIC: Restraining Sheep and Goats

1. Legs and backs can easily be broken, wool can be pulled out readily, and skin will tear easily.

2. Gentleness, calmness, and assurance.

3. Portable hurdle, woven wire, extension hurdle, folding hurdle

4. Hook around rear leg just above the hock.

5. Around his jaw and neck or by rear leg above the hock

6. Set the animal on his rump with his back toward the handler and with his body tilted backward. Hold fore legs for vaccination or each leg as hoof is trimmed.

7. a. Straddle the animal, holding his shoulders firmly between the knees.
   b. Hold jaw parallel to the ground.

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Answer Sheet for Test
on
RESTRAINING SHEEP AND GOATS

1. T
2. T
3. T
4. F
5. F
6. F
7. T
8. T

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Restraint of Animals

TOPIC: Restraining Laboratory Animals and Poultry

1. By avoiding human contact and anger by a whipping motion of the tail.

2. Place palm over the rat's back and wrap thumb and forefinger around body, behing forelegs, folding the forelegs under the chin.

3. To catch an uncooperative rat until he can be picked up as described above.

4. a. By holding the nape of the rat's neck, opening his mouth, and pulling tongue to one side with forceps.
   b. By using a gag made of a wooden tongue depressor with a hole bored in the center for the tube.

5. a. Cone and shallow, wooden box
   b. Towel
   c. Wire mesh cylinder with cork stopper and wad of cotton
   d. Kitchin rat box

6. Catching cage

7. By lifting them by their tails and twirling about for a few seconds.

8. a. Grasp the loose skin at the nape of the neck with one hand and support the rump with the other hand.
   b. Rest animal's back on the palm of the hand with fingers encircling body behind forelegs.

9. With rabbit in squatting position on table, place hand over withers with fingers forked over back of his neck. Hold ear with other hand. Or wrap in large towel.

10. With a catching net or hook. Pass hand under chicken with forefinger between its legs with thumb and third finger holding legs. Place other hand over back of chicken.

11. Hold as described above and place chicken on table. Use hand across back to pull wing back.

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Answer Sheet for Test
on
RESTRAINING LABORATORY ANIMALS AND POULTRY

1. T

2. F

3. F

4. F

5. F

6. T

7. F

8. F

9. T

10. T

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Laws Related to Veterinary Practice

1. a. Person must meet certain standards before practicing
   b. All practioners must have state license.

2. Board of Examiners appointed by the Governor

3. a. Are words or initials added to a person's name indicating that he is a veterinarian?
   b. Does he publicly state that he is a veterinarian?
   c. Does he treat or prescribe treatment for animals?

4. a. When treating domestic animals
   b. When compensation is received for services

5. See list in information sheet.

6. The employer (veterinarian)

7. a. Local and state customs
   b. Degree of supervision given by the veterinarian
   c. Specific nature of the duty
   d. Skill of the assistant

8. a. Liability insurance
   b. Workmen's Compensation Act

9. a. Was the employee also at fault?
   b. Did another employee cause or contribute to the injury?
   c. Was the injury due to a dangerous tool or machine which the employee normally uses?

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Answer Sheet for Test
on
LAWS RELATED TO THE VETERINARY PRACTICE

1. T

2. T

3. F

4. T

5. T

6. T

7. F

8. F

Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Professional Assistance

TOPIC: First Aid

1. May can reduce effects of an injury, reduce or stop severe bleeding, or prevent the death of animal until the veterinarian arrives

2. Care or treatment of sick or injured animals until the veterinarian arrives

3. Pale or grayish gums

4. a. Kept still and quiet
   b. Cover animal to maintain body temperature.

5. a. Hand pressure
   b. Pressure bandage
   c. Tourniquet

6. If bleeding is from an artery or a vein

7. Prevent movement.

8. Keep eye moist with sterile pads moistened with warm, distilled water.

9. a. Lay animal on its side.
   b. Press straight down on chest with palm of your hand.
   c. Release pressure quickly.
   d. Repeat every four or five seconds.

10. Isolate by using broom, chair, or other object. Cover with heavy material before handling.

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Answer Sheet for Test
on
FIRST AID

1. Sound judgment
2. Handled carefully
3. Pink
4. Still
   Quiet
5. Internal
6. Bright red
   Spurts
7. Hand pressure
   Pressure bandage
8. Temporary splint
9. Artificial respiration
10. Rabies

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Answer Sheet
for
VETERINARIAN ASSISTANT

UNIT: Professional Assistance

TOPIC: Simple Anatomy of Animals

1. Ruminant - Has four compartments in its stomach
   Non-ruminant - (simple stomach) - Has a single-compartment stomach
   Ruminant - Cattle, sheep, goats
   Non-ruminant - Hogs, horses, poultry, dogs

2. a. Rumen c. Omasum
   b. Reticulum d. Abomasum

3. a. Storage of feed, especially roughages
   b. Action by bacteria and other micro-organisms
   c. Regurgitation
   d. Further bacterial action

4. a. Reticulum - Additional storage and retain foreign materials
   b. Omasum - Remove water from feed
   c. Abomasum - True stomach - Gastric juice action

5. a. Crop - Holds and moistens feed
   b. Proventriculus - Digestive juice action
   c. Gizzard - Grinds and crushes coarse food

6. Rumen does not develop and begin to function until several days old. Colostrum is high in vitamins and antibodies.

7. a. Ovaries b. Oviducts c. Uterus d. Vagina e. vula

8. a. Testicles b. Sperm ducts c. Seminal vesicles d. Prostate gland
   e. Cowper's glands f. Urethra g. Penis

9. Regulateor stimulate growth , fattening, reproduction, and other body function

10. Female hormone, estrogen estradiol

11. Hormones

Answer Sheet for Test
on
SIMPLE ANATOMY OF ANIMALS

1, Ruminants

2. Roughage
   Bacterial or micro-organism

3. Abomasum

4. Reticulum

5. Ruminants
   Non-ruminants

6. Rumen

7. Colostrum

8. Sperm
   Ovum or egg

9. Ovaries

10. Stimulate
    Regulate

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Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Using X-Ray Equipment

1. Thickness of animal part and a technique chart

2. Kilovoltage peak (KVP, milliampere (ma), time, and distance

3. Selects low voltage to be changed to kilovoltage and affects milliampere setting

4. To see if an x-ray is produced

5. The automatic timer dial

6. a. Use fastest exposure time possible.
   b. Use highest KVP possible.
   c. Use a constant distance.
   d. Use highest ma within the KVP setting.
   e. Measure animal accurately.

7. To prevent scattered radiation

8. To allow a much shorter exposure time

9. A side view

10. See list in information sheet.

11. a. Roll or drape apron over curved surface.
    b. Store gloves with ends open.

Answer Sheet for Test
on
USING X-RAY EQUIPMENT

1. Centimeters
2. Technique Chart
3. Kilovoltage
4. 30
5. Reduce
6. Caliper
7. Grid
8. Holder or Block
9. Dorsal
   Ventral
10. Anterior
    Posterior
11. Lead Apron
12. X-Raying
    Radiographing

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Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Developing X-Rays

1. To prevent fogging of film, because the silver halide crystals are very sensitive to light

2. At each change of solution and with a fiber brush and Clorox diluted in four part water

3. 68°F. for five minutes

4. By adding a concentrated chemical mixture to keep it at full strength

5. Turn the exposed silver halides to black metallic silver.

6. Removes unexposed silver halide crystals and harden the gelatin coating.

7. About 10 minutes (twice the development time)

8. a. In running water at 68°F.
   b. For 20 minutes up to 40 minutes depending on the rate of complete changes per hour

9. In open air or in a heated x-ray dryer

10. a. Weak developer
    b. Old developer
    c. Under-development
    d. Light leak in room or safe-light too bright
    e. Developer temperature too low or too high

11. a. Over-exposure
    b. Over-developed

AnswerSheet for Test

on
DEVELOPING X-RAYS

1. Cassettes
2. Agitated or stirred
3. 68°F.
4. Discarded
5. Liquid or powder
6. Drained
7. Fixer - 30 seconds
8. Yellow
9. Time-Temperature Chart
10. Covered

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Surgical Instruments and Terminology

1. Blunt-Blunt --- 4-1/2", 5-1/2", 6-1/2"
   Blunt-Sharp -- 4-1/2", 5-1/2", 6-1/2"
   Sharp-Sharp -- 4-1/2", 5-1/2", 6-1/2"

2. BANDAGE - Blades are at an angle with the handles and one blade has dull point.
   STITCH - Short blades with one blade having groove or notch near the end.

3. Southern and Eastman

4. The blade has concave curve on sharpened edge.

5. Blades - Straight or curved
   Locks - Box or screw

6. To protect tube without danger of fouling or being chewed

7. 2 cc., 5 cc., 10 cc., 20 cc., 50 cc.

8. Nylon - Nylon center, nylon eccentric, metal slip, metal Luer lock, nylon Luer lock
   Glass - Glass center, glass eccentric, metal Luer Lock, Metal slip, and metal eccentric Luer Lock

9. By gauge number and length in inches.

10. Half-curved, full curved, boat style, double curved, straight

11. Length in inches or feet
    Diameter in fraction of inches

12. Closed, dull point with side opening.

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Answer Sheet for Test
on
SURGICAL INSTRUMENTS AND TERMINOLOGY

1. F
2. T
3. T
4. F
5. T
6. T
7. T
8. F
9. F
10. T
11. F
12. T

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Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Surgery Preparation and Procedures

1. a. Close windows.
   b. Dust woodwork, light fixtures, tables, cabinets, stoves, or radiators, and floors.
   c. Arrange ties for the animal and anesthetic equipment.
   d. Put all equipment, sterile bundles and germicide basins in place.
   e. Have soap, sterile brushes, nail files, caps, and masks readily available.
   f. Place sterile covers on instrument and surgery tables.

2. When they are ready to be used

3. Someone in sterile dress

4. By holding the sterile table cover

5. Crouch down two feet away and grasp below sterile cover.

6. Should have clean clothes with shoes free of dust and dirt

7. Anyone who will come close to the operating table

8. Soap or detergent and water with gauze or brush. 70% alcohol or other antiseptic solution.

9. a. With sterile gauze sponge in straight strokes from the center of the operative area to the outside
   b. Sprayed on with an atomizer

10. a. Scrub with soap and water all gloves, instruments, and basins used.
    b. Launder gowns, drapes, caps, masks, and other linens.
    c. Sterilize gowns, drapes, andtable covers.
    d. Replace all equipment, scrub and disinfect room.

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Answer Sheet for Test
on
SURGERY PREPARATION AND PROCEDURES

1. F

2. F

3. T

4. F

5. T

6. F

7. T

8. F

9. T

10. F

11. F

12. T

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Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Principles of Anesthesia

1. a. To control pain
   b. To insure complete control of animal

2. a. Different raction of different species
   b. Animals differ in size and temperament .
   c. Species will differ in anatomy and physiology.
   d. Animals will not cooperate while anesthetic is being administered.

3. Safety of anesthetic for the patient

4. Local, general, spinal

5. VOLATILE - Chemical administered in the air animal breathes
   NON-VOLATILE - Checmicl usually injected intravenously.
   VOLATILE - Ether, chloroform, nitrous oxide, cyclopropane, etc.
   NON-VOLATILE - Pentobarbital Sodium (Nembutal), thiopental sodium (Pentohal), chloral hydrate, magnesium sulfate

6. a. Vapor is flammable
   b. Irritates respiratory membranes
   c. Slow in its effect

7. See list of seven points in information sheet.

8. 1st stage - Voluntary movement
   2nd stage - Involuntary movement
   3rd stage - Surgical Anesthesia
   4th stage - Paralysis

9. Artificial respiration can be given.

Answer Sheet for Test
on
PRINCIPLES OF ANESTHESIA

1. a. To control pain
   b. To insure complete control of animal

2. Harmful

3. General

4. a. Disposition of animal
   b. Extent of operation
   c. Location of operation
   d. Species of animal
   e. Size of animal

5. Safe

6. Atropine or morphine

7. Response or reaction

8. Veterinarian

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Handling and Caring for Drugs

1. By reading the directions of the manufacturer

2. Should be discarded unless they were opened in an aseptic manner and stored under refrigeration

3. Storage under optimum conditions

4. To aid in dispensing and ordering products

5. To save time and to take advantage of volume discount prices

6. Prevent confusion and damage, add professional dignity, save time, space, and money

7. a. Improves general appearance of clinic
   b. Prevents mistakes
   c. Helps to keep complete inventory

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Answer Sheet for Test
on
HANDLING AND CARING FOR DRUGS

1. T

2. T

3. F

4. F

5. F

6. T

7. T

8. F

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Collecting and Handling Semen

1. a. Adapted to the male animal
   b. Easy for operator to use
   c. Collect normally ejaculated semen free from contamination of dirt, bacteria, and excess secretions.

2. Cleanliness of utensils, operators, and animals

3. Dirt, water, urine, excess heat or cold, light, and other foreign substances such as soap or detergents.

4. a. Immediately after using glass, rubber, and metal ware, rinse and brush with lukeware .2 to .3% solution of water and sodium hexa-meta-phosphate (calgon or other brands) or .3 to .5% tetra-sodium pyro-phosphate.
   b. Rinse with warm water.
   c. Drain and rinse all parts with 70% ethyl or isopropyl alcohol.
   d. Allow to dry in a dust-free, ventilated space.
   e. Store in clean container until just prior to use.

5. a. Artificial vagina
   b. Electrical stimulation
   c. Recovery of semen from vagina after natural service
   d. Rectal massage of ampullae
   e. Breeder's bag

6. See Table 1-8, page 32 in reference.

7. At room temperature if to be used in one to two hours. For longer storage or delayed use, dilute properly and gradually cool to and store at temperature of 35° to 40oF.

UNIT: Professional Assistance
TOPIC: Collecting and Handling Semen
(Answer Sheet continued)

8. a. Fill container (No. 2 can may be used) 9/10 full of water, seal, and freeze solid. Warm the can of ice until it starts to thaw, Insulate with a layer of wrapping paper.
   b. Tie glass or plastic semen vials that are completely full to the outside of the can of ice and place in an insulated bag or carton.
   c. Place insulated bag or carton in a cardboard box and pack with newspaper or other material.

9. Dry ice (CO_2) and liquid nitrogen

10. a. Reduces semen waste
    b. Allows wider sire selection
    c. Aids planned mating
    d. Extend use of valuable sires
    e. Shipping semen long distances is feasible

11. To provide needed volume and to have a beneficial effect on the sperm

12. a. Egg Yolk-Phosphate
    b. Egg Yolk-Citrate
    c. Homogenized Whole Milk
    d. Glycine-Containing Diluters

13. Glycerol or glycerine

14. Sulfanilamide, Streptomycin, Penicillin, and other antibiotics.
    To inhibit bacterial growth and control certain pathogenic organisms and increase conception rates.

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Answer Sheet for Test
on
COLLECTING AND HANDLING SEMEN

1. Soap or detergents
2. Artificial vagina
3. Sperm numbers
4. 24 Hours
5. Bulls
6. Bull
7. Diluters
8. Glycerol or glycerine
9. 6 Hours
10. Egg yolk or whole milk

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC : Artificial Insemination

1. See list of 11 advantages on pp. 28 and 29 in reference.

2. Number of females detected in heat

3. Skilled technicians with training and experience

4. a. Restrain animal with hobbles if necessary.
   b. Bandage tail - especially with mares.
   c. Clean and wash area around vulva.
   d. Rinse away all soap or detergent if used.
   e. Place of insemination should be free of dust.

5. Just before ovulation.

6. Mare - 24-48 hours before end of heat period
   Cow - 10-12 hours after the end of heat period
   Ewe - Near the end of the heat period
   Sow - About the middle of heat period

7. Mare - On third day of heat and at least every other day thereafter unitl the end of heat
   Cow - During the latter half of heat
   Ewe - During the last day of heat
   Sow - During the first 24 to 36 hours of heat

8. Cleanliness of instruments, hands of operator, and animals

9. Sows - uterus-50 to 100 ml.
   Mares - cervix-20 to 30 ml.
   Cows - uterus-.5 to 1.5 ml.

10. a. Not enough females can be bred per male.
    b. Semen cannot be stored long enough.
    c. Difficult to detect females in heat

Answer Sheet for Test on ARTIFICIAL INSEMINATION

1. T
2. T
3. F
4. F
5. F
6. T
7. T
8. T
9. T
10. T

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Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Reproduction and Palpation

1. a. Scrotum
   b. Testicles
   c. Epididymis
   d. Vas deferens
   e. Spermatic cord
   f. Seminal vesicles
   g. Prostate gland
   h. Cowper's gland
   i. Urethra
   j. Penis

2. A male hormone essential for development and function of male reproductive organs, male characteristics, and sexual drive.

3. CRYTORCHID - Male with one or both testicles not descended into the scrotum.
VASECTOMY - Operation performed where the vas deferens is cut or closed off to produce sterility without castration

4. S-shaped curve called the sigmoid flexure

5. a. Ovaries
   b. Fallopian tubes
   c. Uterus
   d. Vagina
   e. Clitoris
   f. Urethra
   g. Vulva

6. a. Produce eggs or ova
   b. Secrete female hormones, estrogen and progesterone
   c. Form corpora lutea (plural form of corpus luteum)

7. Progesterone - a. causes uterus to implant and nourish the embryo, b. prevents other eggs from maturing, preventing heat , c. maintains pregnant condition, d. assists in development of mammary glands.
Estrogen - a. development of female reproductive system, b. heat period of female, c. development of mammary glands, d. development of femininity in the cow.

8. The union of the male (sperm) and female (egg) germ cells. In the fallopian tube.

UNIT: Professional Assistance
TOPIC: Reproduction and Palpation
(Answer Sheet continued)

9. a. Pituitary gland
   b. Ovarian follicle
   c. Corpus luteum
   d. Placenta

10. Recognition of changes in tone, size, and location of the uterine horns and changes in the uterine arteries

11. a. Affords early diagnosis (2 to 3 months)
    b. There is little danger when performed by experienced operators.

12. a. Abdominal ballottement
    b. Fetal heart beat
    c. Fetal movements

Answer Sheet for Test
on
REPRODUCTION AND PALPATION

1. Sperm and egg
2. Scrotum
3. Testosterone
4. Embryo
5. Ovulation
6. Estrogen
7. 16 to 20 hours
8. 24 to 30
9. Rectal method
10. Sixth

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Assisting at Birth

1. a. Mild labor pains
   b. First water bag appears and ruptures
   c. Amniotic bladder (second water bag) appears and ruptures
   d. Severe labor pains
   e. Presentation of fetus

2. Back of the fetus is toward the back of the mother, front feet and legs with head resting on and between them, appear first, followed by the body and rear legs.

3. a. Usually more difficulty in delivery
   b. Calf may suffocate due to rupture of the umbilical cord and strangulation.

4. 1 to 2 hours

5. Outward and downward

6. a. Push fetus back to bring head in normal position.
   b. Rotate fetus, extend forelegs, and deliver by traction.
   c. Rotate fetus, extend rear legs, and deliver by traction.
   d. Turn fetus so that either forelegs and head or rear legs can be started through the pelvis.

7. a. May need to wipe the mucus from the nostrils.
   b. Treat navel cord with 10% tincture of ioding solution.
   c. Help to nurse if needed.

8. Three to six hours

9. Burned or buried in lime unless it is on open range

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Answer Sheet for Test
on
ASSISTANCE AT BIRTH

1. T
2. T
3. T
4. T
5. T
6. T
7. F
8. F
9. T
10. F

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Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Meat Inspection

1. a. To protect buyer from illnesses
   b. To prevent selling meat that would be repulsive to buyer
   c. To prevent false or misleading labeling
   d. To protect livestock industry from diseases
   e. To prevent use of harmful ingredients

2. a. Detect symptoms that direct attention to a particular organ or part of carcass
   b. Detect symptoms not easily detected by post-mortem
   c. Detect diseases that may spread rapidly if action is not promptly initiated

3. a. Posture and movement
   b. State of condition
   c. Hide and hair
   c. External abnormalities
   d. Respiratory system
   e. Temperature

4. Cervical
   Dorsal
   Lumbar
   Sacral

5. 13 pairs

6. Chest cavity or thorax and abdomen

7. Nasal cavity, larynx and epiglottis, trachea, and lungs

8. Heart, blood vessels, and blood

9. Carries some nutrients to cells and gives body protection from waste products and foreign bodies

10. Thyroid, thymus, and adrenal

11. Kidneys, ureters, and bladder

12. Rendered in steam pressure tanks and used in tankage or fertilizer.

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Answer Sheet for Test
on
MEAT INSPECTION

7 a.
9 b.
10 c.
6 d.
3 e.
2 f.
11 g.
1 h.
5 i.
12 j.
4 k.
8 l.

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Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Post-Mortem Examinations

1. a. Valuable part of diagnosis
   b. Give experience and information for the future.

2. Convenience, sanitation, and disposal of carcass

3. One-piece coveralls, rubber gloves, and rubber overshoes that can be sterilized or disinfected

4. Scissors, forceps, probes, two sharp knives, saw, bone chisels, wrecking bar

5. For doctor-client relationships, research purposes, and possible disputes and complications that might arise

6. a. Cause little pain or fright .
   b. Be agreeable to owner.
   c. Not soil the premises
   d. Not change body in any way to hamper examination

7. Shooting, stunning, electrocution, and intravenous injection of magnesium sulfate

8. About twice the anesthetic dose of Nembutal

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Answer Sheet for Test
on
POST-MORTEM EXAMINATIONS

PART I:

1. Temperature
2. Convenience and sanitation
3. Air
4. Suffocation
5. Intestinal

PART II:

1. T
2. F
3. F
4. F
5. F
6. T
7. T
8. T

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Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Professional Assistance

TOPIC: Principles of Genetics

1. Gregor Mendel, an Austrian Monk

2. Genes

3. Chromosomes

4. CATTLE - 30 pair
   HORSES - 30 pair
   MAN - 24 pair
   SWINE - 20 pair
   SHEEP - 27 pair

5. One chromosome and one gene of each pair (1/2)

6. HOMOZYGOUS - Animal with paired genes for the same characteristic
   HETEROZYGOUS - Animal with paired genes for the different characteristics

7. DOMINANT GENE - Covers up or masks the effect of the other gene of the pair
   RECESSIVE GENE - Gene that is masked by the dominant gene if it is present
   IN CATTLE - The polled condition is dominant over the recessive horned condition.

8. PP x pp
   Pp Pp Pp Pp All would be polled but heterozygous

9. RR x rr
   Rr Rr Rr Rr All would be roan color

10. A sudden variation or change in a gene or genes which is later transmissible to offspring

11. Determined by the chromosomal make-up. Female has two sex chromosomes alike, usually referred to as x chromosomes. Male has a pair of unlike chromosomes, usually referred to as x and y chromosomes.

Eggs from Female
ⓧ ⓧ

Sperm from Male
ⓧ ⓨ

Possible Combinations

xx	xy	xx	xy
Female	Male	Female	Male

UNIT: Professional Assistance
TOPIC: Principles of Genetics
(Answer Sheet continued)

12. Genetic factors which cause death of the individual

13. Due to recessive gene - from each parent

14. a. NICKING - Matings resulting in an outstanding offspring
    b. INBREEDING - Mating of animals more closely related than the average of the population from which they came
    c. CLOSEBREEDING - Mating of closely related animals, such as sire to daughter, son to dam, brother to sister
    d. LINEBREEDING - Mating of animals more distantly related than in closebreeding, and keeping offspring closely related to some highly advanced ancestor
    e. OUTCROSSING - Mating of animals of thesame breed but not closely related
    f. CROSSBREEDING - Mating two purebred animals of different breeds.

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Answer Sheet for Test
on
PRINCIPLES OF GENETICS

PART I:

1. Genes
2. Chromosomes
3. One-half
4. Male
5. One-half (Pp, pp, Pp, pp)

PART II:

2 a.
3 b.
4 c.
1 d.
7 e.
8 f.
6 g.
5 h.

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Laboratory Aids

TOPIC: Principles of Fecal Examination

1. To detect the presence of parasites or parasite eggs

2. The facilities and equipment available and the personal preference of the veterinarian

3. a. Make sure the sample is from the animal in question.
   b. Make sure sample is fresh and free from rocks, soil, bedding, and other foreign materials.
   c. Place sample in suitable container.
   d. Refrigerate or preserve if needed.

4. Direct smear method, flotation method, or by egg count per gram

5. Not too reliable unless there is a heavy infestation

6. Sodium nitrate
   Sodium chloride
   Sugar or syrup
   Magnesium sulphate
   Zinc sulphate

7. Because of differences in weight (specific gravity)

8. By training and practicing under the direct supervision of the veterinarian

Answer Sheet for Test
on
VETERINARY ASSISTANT

1. T
2. F
3. F
4. T
5. T
6. T
7. T
8. T
9. F
10. F

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Laboratory Aids

TOPIC: Principles of Blood Examinations

1. Syringe and needle or bleeding needle and sample tube

2. To prevent coagulation (clotting)

3. Erythrocytes - Red blood cells
   Leukocytes - White blood cells

4. Sodium, potassium, and ammonium oxalate, sodium citrate, and heparin

5. Slide smears - 10 to 15 minutes
   Blood cell counts - Up to 24 hours

6. Bleeding time and coagulation time

7. Colorimeter, direct, or indirect method

8. Packed cell volume - Size and number of erythrocytes per volume of blood

9. Brucellosis

10. Under the direct supervision of the veterinarian

Answer Sheet for Test
on
PRINCIPLES OF BLOOD EXAMINATIONS

4 a.

3 b.

6 c.

8 d.

2 e.

9 f.

1 g.

10 h.

5 i.

7 j.

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Laboratory Aids

TOPIC: Principles of Bacteriology Tests

1. Direct microscopic examination, culture, serological tests, and animal inoculation
2. Morphology (form or shape) and reaction of organisms to stains and dyes
3. Spherical (cocci), cylindrical (bacilli), spiral or curved (spirilla)
4. Gram's stain. To make organisms more easily seen and identified
5. Gram-negative -- Organisms that are red in color after the staining process
   Gram-positive -- Organisms that are blue in color after the staining process
6. When microscopic examinations do not result in a definite identification
7. Plate agglutination and tube agglutination tests for brucellosis and pullorum
8. When suspected organism is difficult or impossible to identify and culture or when specimen is contaminated

Answer Sheet for Test
on
PRINCIPLES OF BACTERIOLOGY TESTS

1. F
2. F
3. T
4. F
5. T
6. F
7. T
8. T
9. T
10. F

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Laboratory Aids

TOPIC: Principles of Urine Examinations

1. Physical, chemical, and microscopic examinations

2. a. While urinating during examination
   b. Stroking skin just under the vulva of the cow
   c. Passing a catheter

3. a. Observation and collection while urinating normally
   b. Catheterization
   c. Manual pressure on the bladder
   d. Use collection cage

4. Quantity, specific gravity, color, odor, consistency, and transparency

5. Light yellow to dark amber

6. Clear, cloudy, flocculent, and opaque

7. pH - the degree of acidity or alkalinity

8. Organized and unorganized

9. Epithelial cells, blood cells, mucous threads, and micro-organisms

10. Those present in alkaline urine and those in acid urine

Answer Sheet for Test
on
PRINCIPLES OF URINE EXAMINATIONS

PART I:

1. Clean
2. Catheter
3. 24-Hour
4. Urinometer or Hydrometer
5. Clear

PART II:

1. T
2. F
3. T
4. F
5. T

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Clinical Signs of Common Diseases

TOPIC: Bacterial Diseases

1. Sudden deaths are common. Animals have fever and carry head low. Swellings occur over the body, especially in the neck region.

2. Lameness, swellings over the body that crackle when touched. High fever, loss of appetite, severe depression. Death usually occurs within 3 days.

3. Act of abortion

4. Light-colored, foul-smelling, watery or foamy

5. Erysipelas. Sudden signs, fever, weakness, gait is affected, purplish red color on belly. One form of erysipelas will show the purplish red color in diamond shapes on the belly.

6. Listeriosis or Listerellosis. Depression, staggering, circling, and strange awkward movements. Cows may abort.

7. Depression, high fever, pus discharge from nose. Glands under the jaw swell and eventually break open.

8. Sheep in a high state of nutrition.

9. Lungs, skin, or nasal passage.

10. Abortions, reddish brown color of urine and milk, loss of appetite, heavy breathing, fast pulse.

11. Udder is hot, very hard, and tender. Milk may be watery or thick and lumpy.

12. Newborn animals. Umbilical swellingand discharge, swelling, soreness, and stiffness of the joints.

13. Dust, Vitamin A deficiency, strong sunlight, insects, followed by invasion of various bacteria.

14. The respiratory system

15. The 2nd or 3rd day and about 3 weeks of age.

16. The respiratory system

17. As described in references No. 1 and No. 2.

Answer Sheet for Test
on
BACTERIAL DISEASES

1. T
2. T
3. T
4. T
5. T
6. T
7. F
8. T
9. F
10. F
11. F
12. T
13. T
14. T
15. F

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Clinical Signs of Common Diseases

TOPIC: Virus Diseases

1. A blue tongue and mouth, fever, rapid and extreme loss of weight, frothing of the saliva, lip ulcers, offensive odor, discharge from eyes and nose, weakness, red band at top of animal's hoof, lameness

2. Vaccination, cook garbage, and quarantine new hogs for two weeks

3. Reddish, painful spots on the udder and teats that change to yellowish blisters to pus stage, and then develop scabs

4. Sleeping sickness - animal walks aimlessly, running into objects. Later, the animal may appear sleepy, grind its teeth, and may become paralyzed

5. All cloven-footed animals and man is mildly susceptible

6. The furious form and the dumb form

7. No appetite, depression, small vesicles on lips, gums, and tongue causing them to be red and swollen. Vesicles break and form sores and scabs that bleed easily.

8. High fever, cough, eye and nose discharge, difficulty in breathing, may sit up like dogs to aid breathing

9. Scouring and vomiting, normal temperature

10. Foot-and-mouth disease

11. Anywhere on the body, but especially on the teats or around the head

12. Birds sneeze, gasp, and have difficulty in breathing, they are weak and have ruffled feathers. Later, they may twitch their heads and necks and the head may become twisted and be drawn between the legs or over the shoulders. May walk in circles or backwards.

13. Newcastle disease, larynogotracheitis, and coryza

14. Larynx and windpipe

UNIT: Clinical Signs of Common Diseases
TOPIC: Virus Diseases
(Answer Sheet continued)

15. Range paralysis - partial paralysis of one or both legs or wings
    Gray-eye form - the iris of the eye loses its normal color and becomes gray and distroted

16. a. Skin and comb
    b. Throat

17. As described in reference No. 1

Answer Sheet for Test
on
VIRUS DISEASES

PART I:

1. Insect

2. Erysipelas

3. Udder

4. Pigs

5. Respiratory

PART II:

__4__ a.

__5__ b.

__7__ c.

__8__ d.

__1__ e.

__2__ f.

__10__ g.

__3__ h.

__9__ i.

__6__ j.

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Clinical Signs of Common Diseases

TOPIC: Parasitic Diseases

1. Rapid heart beat, difficult breathing, dry muzzle, tremors, loss of appetite , eyes and other mucous membranes may become yellow
2. High temperature, rapid breathing, pale and yellow membranes, and red to black urine
3. Diarrhea and bloody feces, unthriftiness, and weakness
4. December to May The heel fly
5. Loss of weight, anemia, digestive disturbances
6. Snotty nose, difficult breathing, and sneezing
7. Unthriftiness, stunted growth, coughing, "thumpy" breathing
8. Redness and swelling of the reproductive organs, frequent urination, increased sexual excitement, firm, round, flat swellings (dollar plaques) on body and nec
9. Irritation of the anus and tail rubbing
10. Anemia, emaciation, rough hair coat, sunken eyes, digestive disturbances, and sometimes posterior paralysis
11. Lowered head, drooping wings, ruffled feathers, drowsiness, and a yellowish diarrhea
12. Internal - Large roundworms and cecal worms
    External - Lice and mites
13. As illustrated in reference No. 1

Answer Sheet for Test
on
PARASITIC DISEASES

1. T
2. T
3. F
4. F
5. F
6. T
7. T
8. F
9. F
10. T

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Clinical Signs of Common Diseases

TOPIC: Nutritional Diseases

1. Commonly an iron deficiency. Loss of appetite, emaciation. Pigs show hard breathing and swollen head and shoulders.
2. Greatly distended paunch easily seen on left side in front of hip
3. Severe pain, distended abdomen, intestinal rumbling, violent rolling and kicking, profuse sweating
4. Vitamin B deficiency
5. Extreme pain, fever, reluctance to move on feet
6. Nervousness, twitching of head and neck, head is held high, rapid respiration, fever, grinding of teeth, abundant saliva
7. Difficulty in forcing air out of lungs, resulting in jerking of the flanks and coughing. Nasal discharge
8. Baby pig shakes. Shivering, weakness, failure to nurse. If disturbed, pigs emit a weak, crying squeal.
9. Goiter (or big neck) in calves, lambs, and kids. Pigs may be born hairless and foals may be weak.
10. In cattle - 1 to 6 weeks after calving
    In sheep - During last 2 weeks of pregnancy
11. Soon after calving in high producers. Loss of appetite and depression, collapse with head turned back to the side
12. Osteomalacia may be caused by lack of vitamin D. calcium or phosphorus deficiency, or incorrect ratio of calcium to phosphorus
13. Periods of cloudy vision in one or both eyes
14. Young animals
15. Salt deficiency - lack of salt
    Salt sick - lack of cobalt, copper and/or iron

UNIT: Clinical Signs of Common Diseases
TOPIC: Nutritional Diseases
(Answer Sheet continued)

16. Selenium deficiency and lack of vitamin E. White muscle disease

17. As described in reference, pp. 490-492.

Answer Sheet for Test
on
NUTRITIONAL DISEASES

6 a.

9 b.

7 c.

2 d.

10 e.

3 f.

1 g.

8 h.

5 i.

4 j.

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Clinical Signs of Common Diseases

TOPIC: Fungal Diseases

1. Sneezing, snout shows wrinkles and may bulge and thicken
   Later, the snout and face may twist to one side. Pigs become rough all over the body.

2. Hard to breathe, eat or drink
   Drooling, yellowish crumbling masses on edge of tongue and in throat

3. Most thrifty, rapid-growing pigs
   Fever, swollen eyelids, staggering gait, fits or convulsions, paralysis

4. Lameness, reddening and swelling of skin above hoof, between toes, or in heel
   Pus discharge and foul odor

5. Bones in lower jaw become enlarged, spongy and filled with pus. May have discharge of pus with foul odor from surface of jaw

6. Swelling under the skin in throat area or in tongue. Enlargements break open and discharge pus. Tongue will increase in size and harden if it is involved. Constant drooling and impaired eating.

7. Round, scaly areas devoid of hair around eyes, ears, neck, or root of tail
   Mild itching

Answer Sheet for Test
on
FUNGAL AND MISCELLANEOUS DISEASES

1. T
2. F
3. F
4. T
5. T
6. F
7. F
8. T

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Clinical Signs of Common Diseases

TOPIC: Reproductive Problems

1. Temporary or permanent reproductive failure. Results from anestrus (lack of heat), failure to conceive, or abortion

2. a. Genital infections and diseases
   b. Poor management and feeding
   c. Physiological and endocrine distrubances
   d. Genetic abnormalities
   e. Anatomical defects and injuries
   f. Miscellaneous

3. a. Brucellosis
   b. Leptospirosis
   c. Trichomoniasis
   d. Metritis
   e. Vaginitis
   f. Vibriosis

4. a. Ovulation and breeding not synchronized
   b. Improper feeding
   c. Exercise
   d. Sexual rest
   e. Season and light

5. a. Anestrus
   b. Disturbed estrus cycle
   c. Sexual infantilism
   d. Retained corpus leteum
   e. Cystic ovaries
   f. Retained placenta
   g. Intersexes and hermaphrodities

6. a. Lethal genes
   b. White heifer disease

7. Sterile heifer born twin with a bull

8. a. Large number of healthy calves from a season's service
   b. Microscopic examination of the semen

9. a. Volume
   b. Sperm count
   c. Progressive movement
   d. Morphology (shape)

10. Animal that has one or both testicles that have not descended into the scrotum

Answer Sheet for Test
on
REPRODUCTIVE PROBLEMS

1. Anestrus

2. Sterility or infertility

3. Brucellosis
   Leptospirosis

4. Ovulation

5. Deficiency

6. Lethal

7. Sterile

8. High temperature

9. a. Volume
   b. Sperm Count
   c. Progressive movement
   d. Morphology (shape)

10. Any two of the following:
    a. Excitement
    b. Transportation
    c. Animal management
    d. Improper semen collection

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Animal Nutrition

TOPIC: Essential Food Nutrients

1. Carbohydrates, fats, proteins, minerals, vitamins and water

2. Nitrogen-free extract (N. F. E.) -- more easily digested sugars and starches
   Fiber -- cellulose and lignin that are harder to digest

3. Carbohydrates and fats -- carbon, hydrogen, and oxygen
   Proteins -- carbon, hydrogen, oxygen, and nitrogen

4. All animals can manufacture some amino acids from others.
   Non-ruminants -- need at least 10 amino acids
   Poultry -- need at least 11 amino acids
   Ruminants -- seem to have the ability to manufacture all the required amino acids from any one or more

5. Major -- salt, calcium, and phosphorus
   Minor -- iron, copper, manganese, iodine, cobalt, sulphur, magnesium, zinc, potassium, and boron

6. Antibiotics, hormones, iodinated casein, arsenicals, Dynafac, detergents or surfactants, tranquilizers, and rumen organisms.

7. Carbohydrates -- heat, energy, and fattening
   Fats -- 2.25 times the amount of heat and energy as from carbohydrates
   Proteins -- (amino acids) for building (growth), maintenance and repair of body tissue cells plus helping to form hair, wool, feathers, hoofs, horns, milk, and eggs

8. Digestible nutrient -- any portion of a feed that is digestible
   Ration -- amount of feed allowed during a 24-hour period
   Balanced ration -- supplies in correct proportion all food nutrients necessary to nourish animal properly during a 24-hour period

Answer Sheet for Test
on
ESSENTIAL FOOD NUTRIENTS

1. Carbohydrates
   Sugars
   Starches

2. Fats

3. Amino Acids

4. Nitrogen

5. Amino Acids

6. Liquid

7. Carbohydrates
   Fats

8. Proteins (amino acids)

9. Bones
   Teeth

10. Fiber

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Animal Nutrition

TOPIC: Classes of Feeds

1. Roughages and concentrates

2. Roughages - high in fiber, low in digestibility
   Concentrates - low in fiber, high digestibility

3. Higher in nitrogen (protein)

4. A feed that contains 20% or more protein

5. Animal or vegetable

6. Grains, molasses, and roughages

7. Grains and oil seed crops, animal fats and oils, and protein concentrates

8. Bacteria in rumen combine the nitrogen from the urea with carbon, hydrogen, and oxygen from carbohydrates to form amino acids.

9. Vitamin A, B-complex group, D. and E

10. Limestone - calcium
    Steamed Bone Meal - phosphorus and calcium

11. a. Variety of feed
    b. Locality and type of soil
    c. Stages of maturity
    d. Method of harvesting
    e. Length of time in storage
    f. Manufacturing process

Answer Sheet for Test
on
CLASSES OF FEEDS

__6__ a.

__4__ b.

__8__ c.

__7__ d.

__10__ e.

__1__ f.

__9__ g.

__2__ h.

__5__ i.

__3__ j.

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Animal Nutrition

TOPIC: Digestion, Absorption, and Use of Nutrients

1. All the changes which food undergoes within the digestive tract to prepare it for absorption and use in the body

2. a. Food can be swallowed easily.
   b. Exposes large surface area to digestive juices

3. An organic compound (protein) that break down other organic compounds without themselves changing

4. Some starch is broken down into maltose by ptyalin in saliva.

5. Regurgitating food, chewing, and swallowing

6. In small intestine by amylase and invertases.

7. In stomach by pepsin

8. Bile

9. In villi of small intestine

10. Sugars, fats, excess protein (after nitrogen is removed)

Answer Sheet for Test
on
DIGESTION, ABSORPTION, AND USE OF NUTRIENTS

7 a.

5 b.

10 c.

8 d.

1 e.

9 f.

3 g.

4 h.

2 i.

6 j.

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Animal Nutrition

TOPIC: Feeding Standards for Farm Animals

1. Tables stating amounts of nutrients which, it is believed, should be provided in rations for farm animals of various ages and classes in order to get best results

2. The type of animal, size or weight, use of animal, and conditions under which it is fed

3. 500 lb. Heifer - Digestible protein .81-.82
   Total digestible nutrients 6.9-8.1

4. 900 lb. Pregnant Cow -
   Wintering - Digestible protein .65-.70
   Total digestible nutrients 6.9-9.7

5. A table or chart worked out by scientists, showing average compositions of feeds

6. To enable the feeder to more nearly estimate the nutritional value of his feeds.

7. Types of feed
   Quality of feed

8. Type of feed — Digestible protein
   Percent dry matter — Minerals — Total digestible nutrients

9. Corn, dent, all analysis, grade 2 = Digestible Protein - 7.2%
   Total Digestible Nutrients - 88%

10. Bermuda grass hay = Digestible Protein - 3.7%
    Total Digestible Nutrients - 44.2%

11. Alfalfa hay, sun cured = Dry Matter - 88%

Answer Sheet for Test
on
FEEDING STANDARDS

1. a. Type of feeds
   b. Dry matter
   c. Digestible Protein
   d. Total Digestible Protein
   e. Minerals

2. a. Type of animal
   b. Size or weight
   c. Use of animal
   d. Conditions under which it is fed

3. a. Types of feed
   b. Quality of feed

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Animal Nutrition

TOPIC: Factors to Consider in Formulating Feeds

1. Because of additional energy used up in muscular work of grazing

2. Protein rich feeds are usually higher in cost.

3. Yes, feeds must be palatable to the animal or they will not eat as much, therefore, cutting down on production.

4. Cost of the ration

5. A ration which provides an animal the proper proportions and amounts of all the required nutrients for a period of 24 hours.

6. a. Experience
   b. Born livestock intuition or "know how"

7. Antibiotics
   Hormones

8. Bacteria

Answer Sheet for Test
on
FACTORS TO CONSIDER IN FORMULATING FEEDS

1. F
2. T
3. T
4. T
5. F
6. F
7. T
8. F
9. T
10. T

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Animal Nutrition

TOPIC: Common Methods in Balancing Rations

1. a. "Square" method or Pearson Square
   b. "Total Digestible Nutrient" method

2. a. Simple
   b. Direct
   c. Easy
   d. Permits quick substitution of feed ingredients

3. Protein

4. a. Feeding standards
   b. Feed Analysis Tables

5. Because,it considers more than protein alone, such as dry matter, total digestible nutrients and protein.

6. General daily recommendations for various description of animals as to forage per day and concentrates per day, based on types of animals under various feeding conditions.

7. Corn and cob meal - 5.9 digestible protein
   Cotton seed meal (exp) - 33.1 digestible protein

Cotton seed meal 33.1	9.1 parts of cotton seed meal
Corn and cob meal 5.9	18.1 parts of corn and cob meal
Total parts	27.2 parts

18.1 - 27.2 = 66.5 lbs. corn and cob meal in 100 obs. of mixture for 15% protein
9.1 - 27.2 = 33.5 lbs. of cotton seed meal in 100 lbs. for 15% protein

Feed 12 to 15 lbs. per day for a 400-500 lb. fattening calf.

8. Ration for 500 lb. dairy heifer:

UNIT: Animal Nutrition
TOPIC: Common Methods in Balancing Rations
(Answer Sheet continued)

Requirements:	Digestible Protein	Total Digestible Protein
	.81-.92	6.9-8.1
Corn and cob meal	5.4	73.2
Wheat bran	13.2	66.9
Cotton seed meal	32.2	69.1
Bermuda hay	3.6	44.2

Feeds and Feeding recommends 2-4 lbs. of concentrates daily. Hay is fed free choice.

FEED	LBS. FED	D.P.	T.D.N.
Corn and cob meal	4	.216	2.93
Wheat bran	2-1/2	.333	1.70
Cottonseed meal	1/2	.161	.346
Bermuda hay	5	.160	2.310
		.870	7.286

Answer Sheet for Test
on
COMMON METHODS IN BALANCING RATIONS

1. a. "Square" method
   b. "Total Digestible Nutrients" method

2. Feeding
   Feed Analysis

3. Protein

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Miscellaneous

TOPIC: Controlling Rodents and Birds

1. a. They spread diseases and parasites.
   b. Damage feeds and buildings
   c. Decrease profits

2. They are multiple-dose poisons that cause internal hemorrhaging. Warfarin, pival, fumarin

3. 5 to 14 days of continuous feeding

4. Board tunnels, open floored box, log tunnel, tile, or pipe tunnel.

5. Daily for first week and then every other day

6. By sifting white flour around station and check for tracks

7. a. Removal of trash, rubbish, and junk
   b. Ripping out dark, enclosed places that are not needed.
   c. Storing lumer, firewood, pipe, posts, and other materials on racks 18 to 24" off the ground
   d. Store feed in rodent-proof barrels or bins and clean up spilled grain.

8. a. Concrete curtain wall around foundation .
   b. Seal cellarways with concrete.
   c. Close foundation openings with metal collars, screens, or masonry.
   d. Screen broken basement windows.
   e. Cover rotted doors with metal flashings.

9. a. Smaller amount of bait in tray with no more than 1/4" lip
   b. More bait stations
   c. Longer feeding period

10. Poisoning or trapping

11. Strychnine or calcium cyanide

12. English sparrows, starlings, or pigeons

13. a. Screen all windows and openings.
    b. Kill by shooting.
    c. Poison with strychnine-poisoned grain with proper precautions.
    d. Trap the birds

Answer Sheet for Test
on
CONTROLLING RODENTS AND BIRDS

1. Multiple dose

2. Internal bleeding

3. Shallow
   Open

4. 24 Hours

5. 14 Days

6. Cleaned up
   Rat-proofed

7. Longer

8. More

9. Pocket gophers

10. Poisoning

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Miscellaneous

TOPIC: Maintenance and Painting Procedures

1. To preserve, make attractive, more sanitary, and rooms lighter

2. The number of square feet of surface area, the kind of paint, kind of surface, and number of coats.

3. Quicklime, boiling water, salt, cement, and ultra-marine bluing

4. a. The right kind of paint for the job
   b. A high quality paint

5. Warm -red, orange, yellow, cream, buff, peach, light tan
   Cool - green, blue, and violet

6. As soon as possible with primer and with paint as soon as primer is dry (usually at least 48 hours)

7. Before finish starts to check, crack, or peel

8. a. Remove all dirt, plaster, etc.
   b. Remove cracked, peeling, or loose paint.
   c. Smooth rough places.
   d. Cover knots and sappy spots with shellac.
   e. Fill holes and cracks.
   f. Remove grease if present.

9. Paint removers, blow torch, scrappers, wire brush, and sandpaper

10. Paint thinner, turpentine, or kerosene for oil base paint
    Soap and hot water for water or rubber base paint

Answer Sheet for Test
on
MAINTENANCE AND PAINTING PROCEDURES

1. F
2. T
3. F
4. T
5. T
6. T
7. T
8. F
9. F
10. T

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Miscellaneous

TOPIC: Fence Building Principles

1. Type of animal to be confined

2. By numbers as 1155, 1047, 832, and 726
The first one or two digits give the number of line (horizontal) wires.
The last two digits give height in inches.

3. 6" spacing and 12" spacing

4. No. 9, 11, 12-1/2, and 14-1/2 (wires other than top and botom line wire)

5. Woven - 20 rod rolls
Barbed - 80 rod spools

6. Last longer, require less storage space when not in use, require less labor, and may give some lightning protection

7. 3-1/2 to 4 feet

8. Pasture or field - 12-16-1/2 feet
Corral - 8-12 feet

9. Setting and bracing corner, end, and gate posts

10. Size of tension curves in the line wires

11. About three-fourths the height of the animal

Answer Sheet for Test
on
FENCE BUILDING PRINCIPLES

PART I:

1. 55 Inches
2. Larger or Heavier
3. 12-1/2
4. Size and Shape
5. Double span
   Single span

PART II:

1. F
2. F
3. T
4. T
5. T

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Miscellaneous

TOPIC: Mixing Concrete

1. By volume proportion of cement, sand, and gravel
2. The amount of water and amount of cement
3. Six gallons of water to each sack of cement
4. Moisture in the sand will require less water to be added to the mix.
5. By squeezing in the hand. Damp sand falls apart; wet sand forms a ball; very wet sand glistens and leaves excess moisture on the hand.
6. Cement - Sack (1 cubic foot)
   Sand and Gravel - Cublic yard
7. a. Selecting suitable materials
   b. Thoroughly mixing in the right proportions
   c. Correctly placing, finishing, and curing
8. By varying the amounts of aggregates (sand and gravel)
9. Cement - 6-1/4 sacks (cubic feet)
   Sand - .52 cubic yard
   Gravel - .70 cubic yard
10. Sand and cement
11. Should be protected from drying out for at least five days.
12. Number of sacks of cement per cubic yard of concrete

Answer Sheet for Test
on
MIXING CONCRETE

__10__ a.

__6__ b.

__9__ c.

__5__ d.

__1__ e.

__6__ f.

__4__ g.

__2__ h.

__3__ i.

__7__ j.

Answer Sheet
for
VETERINARY ASSISTANT

UNIT: Miscellaneous

TOPIC: Weed and Brush Control

1. A plant growing where it is not wanted

2. A plant that completes its life cycle in one season (produces seed and dies)

3. Plant that lives longer than two years

4. a. Choosing the right chemical
   b. Applying the herbicide properly

5. a. Read and follow label directions and precautions.
   b. Chemicals may kill or injure desirable plants.
   c. Do not allow drift of mist or vapors to desirable plants.
   d. Do not breathe, swallow, or allow chemicals to contact skin.

6. Broad-leaf plants

7. Brush, prickly pear, and other plants resistant to 2,4-D

8. Perennial grasses such as Johnsongrass, Bermudagrass, and quackgrass

9. a. Boron compounds
   b. Carbon bisulphide
   c. Chlorates (Sodium Chlorate)
   d. Divron (Karmex)
   e. Erbon
   f. Monaron (Telvar)
   f. TCA

Answer Sheet for Test
on
WEED AND BRUSH CONTROL

1. F
2. F
3. F
4. F
5. T
6. T
7. T
8. F
9. T
10. T

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Topic Test
on
THE PROFESSION OF VETERINARY MEDICINE

Student: ____________________ School: ____________________

Date: ____________________ Score: ____________________

Mark the following statemtnts True or False:

__________1. A veterinarian student can normally attain a D. V. M. degree in four years.

__________2. A veterinary medicine degree program is offered at all agricultural colleges.

__________3. A veterinary student's program would include chemistry and genetics courses.

__________4. A veterinarian may limit his practice to small animals.

__________5. Veterinarians interested in research would be limited to positions with commercial companies.

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Topic Test
on
THE VETERINARIAN ASSISTANT

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

Fill in the blanks in the following statements:

1. A veterinarian does not have time for most ______________ and ______________ duties that are essential in a private practice.

2. In addition to routine office and cleaning work, walls, windows, woodwork, and driveways need regular ______________ and ______________.

3. Routine kennel and cage chores are a ________ ______________ ________.

4. Proper ______________ and ______________ are expected in the kennel and cages.

5. The assistant will be expected to aid the doctor with ______________ and ______________ as part of the professional duties in the clinic.

6. List five desirable traits of a veterinarian assistant:

   a. ______________________________

   b. ______________________________

   c. ______________________________

   d. ______________________________

   e. ______________________________

Topic Test
on
SAFETY ON THE JOB

Student:______________________ School:______________________

Date:______________________ Score:______________________

Fill in the blanks:

1. List five general dangers while working as a veterinarian assistant:

   a. ______________________

   b. ______________________

   c. ______________________

   d. ______________________

   e. ______________________

2. The primary dangers from small animals are ______________ and ______________.

3. The operator of power equipment might be injured in what four ways?

   a. ______________________ c. ______________________

   b. ______________________ d. ______________________

4. Improper cleanings, disinfection, or sterilization might have what two results?

   a. ______________________ b. ______________________

5. Proper mixing and careful application of all compounds in treating patients is important to lessen the danger of ______________.

6. The veterinarian's proper diagnosis and treatment of patients may depend greatly on the performance of the assistant in the ______________________.

Topic Test
on
ROUTINE OFFICE WORK

Student:______________________ School:______________________

Date:______________________ Score:______________________

Mark each statement True or False:

________1. The impression an assistant makes when greeting a client can affect the veterinarian.

________2. Before introducing the client to the doctor, the only information needed is the client's name.

________3. While waiting to see the doctor, clients and their pets should be of no concern to the assistant.

________4. Future appointments should be made with only the doctor's schedule in mind.

________5. The main concern in handling animals in the reception room is for the assistant not to be hurt.

________6. The veterinarian is the only one that should have a knowledge of the office records.

________7. The assistant should be familiar with the operation of all office equipment.

________8. Office duties may include preparing refreshments.

________9. The veterinarian should remember all important dates and meetings.

________10. Two-way radio operation will be limited to the veterinarian.

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Topic Test
on
TELEPHONE COURTESY

Student:____________________ School:____________________

Date:____________________ Score:____________________

PART I: Mark each statement True or False:

_______ 1. Using the telephone is the same in the office as at home.

_______ 2. Telephone messages for the veterinarian should be written.

_______ 3. The confidence of a caller can not be gained by telephone conversation.

_______ 4. It is better to be pessimistic rather than optimistic.

_______ 5. There is no reason to repeat a caller's name during the conversation.

PART II: Fill in the blanks:

1. The screening of calls requires __________, __________ and _____.

2. The telephone should be answered _____ __________.

3. A _____ and _____ should be kept near the telephone.

4. A good method to re-open a conversation is to state __________.

5. Allowing a caller to replace receiver first is evidence of a __________ __________, __________ person.

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Topic Test
on
TWO-WAY RADIO OPERATION

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

Fill in the blanks:

1. Many routine calls can be scheduled________ ________ for better efficiency of the doctor's time.
2. All two-way radio operators should have a____________, ____________ ____________ of the radio system.
3. In order to operate two-way radio equipment, the veterinarian must receive a permit from the ______________________.
4. FM radio equipment does not provide a continuous ____________ ____________.
5. Before starting transmission, the microphone switch should be depressed a____________ or______.
6. Transmission should be done ____________ and ______________.
7. Shouting into a microphone creates a____________ and ____________ message.
8. The F. C. C. requires each unit to be checked________ ________ for ______________, ______________, and____________ ________.
9. Why should the voltage of the power source be checked periodically?
____
____.

Topic Test
on
CARING FOR PATIENTS

Student: ____________________ School: ____________________

Date: ____________________ Score: ____________________

PART I: Fill in the blanks:

1. Kennel records should show kind and amount of food and the __________ and ____________________ of each patient.
2. The type of feeding containers will depend on the ____________________.
3. Each animal should have a supply of ______________ at all times.
4. ____________ and ____________ may be done with power tools.
5. Animals going home should be ____________________.

PART II: True or False:

________ 1. Most chores in the kennel will be done by the veterinarian.

________ 2. Regular feeding times are not important.

________ 3. Not all animals should be exercised.

________ 4. When releasing a patient, the client should receive an explanation of recommendations for further treatment and care of the animal.

________ 5. A bandage does not need changing unless it is dirty.

Topic Test
on
CLEANING AND DISINFECTING

PART I: Fill in the blanks:

1. A disinfectant may be defined as ______________________________
____.

2. Disinfectants must touch the ________________.

3. List five characteristics of a good disinfectant:

   a. ____.

   b. ____.

   c. ____.

   d. ____.

   e. ____.

4. An antiseptic is intended for use on ______________________.

5. Effective disinfection depends on these four things:

   a. ______________________.

   b. ______________________.

   c. ______________________.

   d. ______________________.

PART II: True or False:

________ 1. Cleaning is usually done with acid detergents.
________ 2. Disinfectants will not kill organisms embedded in soil.
________ 3. A disinfectant should be soluble in water.
________ 4. The economy of a disinfectant is based solely on cost per gallon.
________ 5. All disease-producing bacteria can be killed with any disinfectant.

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Topic Test
on
TEMPERATURE, PULSE RATES, AND BREATHING RATES

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

PART I: True or False:

___ 1. Temperature of an animal is only useful for a proper diagnosis.

___ 2. Body temperatures are usually taken with a minimum thermometer.

___ 3. Before insertion, the thermometer should be lubricated.

___ 4. A string tied to the end of the thermometer will aid in retrieving it.

___ 5. Temperature and pulse rate may be affected by exercise.

PART II: Fill in the blanks:

1. The ______________ indicates the rapidity of the heart beat.

2. The pulse rate of cattle may be taken in these two of the three areas:

   a. ____,

   b. ____,

3. Pulse rate increases with exercise, ______________, ____________, and high outside temperature.

4. The thermometer should always be ______________ and ______________ after each use.

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Topic Test
on
BEDDING FOR ANIMALS

Student: ____________________ School: ____________________

Date: ____________________ Score: ____________________

PART I: Fill in the blanks:

1. Bedding is used primarily for keeping animals __________ and ______________.

2. Four factors in selecting the type of bedding are:

   a.

   b.

   c.

   d.

3. The amount of bedding needed will depend on its ______________ capacity.

PART II: True or False:

___ 1. The animal's comfort is the only reason for providing bedding.

___ 2. 100 pounds of hay or straw will absorb more water than 100 pounds of peat moss.

___ 3. Sand has the lowest absorption capacity of all bedding materials.

___ 4. Sawdust, wood shavings, or cut straw should not be used as sheep bedding.

___ 5. Cut straw will absorb more liquid than long straw.

Topic Test
on
DETERMINING AGE OF ANIMALS

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

PART I: Answer the following questions:

1. What is the best way to become proficient in determining age by examining the teeth? ______________________
2. In cattle, sheep, and goats, there are how many incisors in the upper jaw? ______________________
3. In cattle, sheep, and goats, the names of each of the pairs of incisors are:

   a. ______________________ c. ______________________

   b. ______________________ d. ______________________
4. When a sheep loses some teeth due to age, it is called a ______________________.
5. In horses, what is a wolf tooth? ______________________

PART II: True or False:

_________1. Mature swine have twelve incisors.

_________2. Tushes are usually not present in a mare.

_________3. The age of a horse over 12 years of age can not be accurately determined.

_________4. Permanent teeth in horses do not appear until after two years of age.

_________5. Age in horses must be determined by the wear and slant of teeth after five years of age.

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Topic Test
on
HANDLING ANIMALS AND COMMON TERMS

Student: ____________________ School: ____________________

Date: ____________________ Score: ____________________

PART I: Fill in the blanks:

1. Handling and preparing animals for injections requires __________ and __________.

2. In restraining large animals, the purposes of bowing the neck are to ______________________________, and to expose the ____________________,

3. Why should a tight rope or halter around the throat or neck be avoided?

____

4. Why should the assistant be familiar with injection terminology?

____

PART II: Multiple Choice:

_____1. Injections into the skin are called (a) Subcutaneous, (b) Cutaneous, (c) Intraocular.

_____2. An (IM) injection refers to (a) Intrapulmonary, (b) Intramammary, (c) Intramuscular.

_____3. Frequent observation is required after injection of (a) all, (b) no (c) some animals.

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Topic Test
on
INJECTION PROCEDURES

Student:____________________ School:____________________

Date:____________________ Score: ____________________

PART I: Fill in the blanks:

1. The abbreviation, c.c.,is an abbreviation for ________ ________________.
2. The temperature of injection materials, syringes, and needles should never be____________ than body temperature.
3. It is important not to force ____________ ____________________ into the animal's body.
4. Needles that are__________ should be______________ and____________.
5. The steps in properly filling a syringe include forcing ________ ________________from the barrel before making injection.

PART II: True or False:

__________1. Some injections can be given at cold temperatures.

__________2. Clipping or shaving is never needed for a simple injection.

__________3. There is no reason to change needles between injections of of animals in the same herd.

__________4. In filling a syringe, the bottle of material is never inverted.

__________5. It is not necessary for the veterinarian to direct or supervise a simple injection.

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Topic Test
on
APPLYING BANDAGES

Student:________________________ School:________________________

Date:________________________ Score:________________________

True or False:

________1. All veterinarians use the same type of bandages.

________2. All bandages can be secured by the same method.

________3. Bandages can be applied too tightly.

________4. Only sterile bandage materials should be used.

________ 5. A knot tied in the gauze is the most effective method of keeping a bandage in place.

________6. A good bandage will not need protection from contamination.

________7. Pressure bandages may be used to control bleeding.

________ 8. If applied at the proper point, finger or hand pressure may control bleeding.

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Topic Test
on
DEHORNING, CASTRATING, AND DOCKING

Student:______________________________School:____________________________

Date: ______________________________Score:____________________________

PART I: Fill in the blanks:

1. Dehorning should be done at a _______________ age.
2. The use of chemical dehorning materials should be limited to __________ __________ under supervision.
3. Brittle horns of mature cattle can best be removed with a _______.
4. The____________________ is used to apply a rubber ring.
5. In castrating cattle by slitting the side of the scrotum and in swine, it is important to extend the incision well down to allow ____________ ________________.

PART II: True or False:

__________1. In using the Burdizzo, it is important not to clamp across the entire scrotum.

__________2. Sanitation and disinfection are important in docking, castrating, and dehorning.

__________3. Pigs should be vaccinated and castrated at the same time.

__________4. Pigs should not be castrated until after weaning.

__________5. Mature boars are never castrated.

__________6. Lambs may not be docked and castrated at the same time.

__________7. Colts are usually castrated at seven to fourteen days of age.

Topic Test
on
MARKING ANIMALS

Student:____________________ School: ____________________

Date: ____________________ Score: ____________________

PART I: True or False:

_______ 1. Brands can be located on any area of the body or head of cattle.

_______ 2. A reddish color indicates proper temperature of a hot iron.

_______ 3. Any type of paint can be used to brand sheep.

_______ 4. Marking rams aids in keeping breeding records.

_______ 5. Metal ear tags are easily attached and are a permanent method of marking animals.

PART II: Fill in the following blanks:

1. Two methods of hide branding are:

   a. ____________________

   b. ____________________

2. A good brand should be easy to______.

3. Two ownership earmarks commonly used are________________ and ________________.

4. ____________is an identification mark used on the range and is made by cutting down a strip of skin on the jaw.

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Topic Test
on
PREPARING LIVESTOCK FOR SHIPMENT

Student:____________________ School:____________________

Date:____________________ Score:____________________

PART I: Fill in the blanks:

1. The greatest factor in deciding whether to use truck or rail is ____________ ________ _____.

2. When mixed loads are put in the same truck or car, ______________ should be used.

3. The ________ law provides for feed and rest stops during long hauls by rail.

4. Shrink is expressed in terms of ______________.

5. __________ animals shrink more than ___________ animals.

PART II: True or False:

_______1. All requests for hauling facilities should be requested or confirmed in writing.

_______2. It is important to work animals slowly without undue excitement when loading.

_______3. Care should be taken not to injure animals by hitting or crowding into objects.

_______4. Partitions may be used to keep animals closer together.

_______5. Sand is the only bedding needed in trucks or rail cars.

Topic Test
On
BREEDS OF SMALL ANIMALS

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

True or False:

_____ 1. Domestic shorthair cats may be one color or a mixture of colors.

_____ 2. The darker-colored ears, face, feet, and tail of Siamese cats are called "points".

_____ 3. Chocolate-point and lilac-point Siamese cats are variations of seal-point and blue-point colors.

_____ 4. The Beagle is classed under working dogs.

_____ 5. The Dalmation is considered a non-sporting dog.

_____ 6. The Boston terrier is a toy dog.

_____ 7. The Beagle is usually a solid color.

_____ 8. The Dachshund is usually black in color.

_____ 9. The German Shepherd is considered to be a working dog.

_____ 10. The Pomeranian breed is larger than a Doberman Pinscher.

Topic Test
on
THE BATTLE AGAINST DISEASES

Student:________________________ School: ________________________

Date: ________________________ Score: ________________________

True or False:

________1. All of the diseases of livestock were imported from Europe.

________2. Control of a disease cannot be left to individual initiative.

________3. Quarantines are readily accepted by livestock owners.

________4. Hog cholera was controlled by testing and slaughtering diseased animals.

________5. Tuberculosis-free accreditation by counties started as early as 1919.

________6. Federal meat inspection was primarily established to meet economic needs.

________7. Because of our transportation system, diseases can spread faster than ever before.

________8. Disease control and eradication is the application of research.

________9. Eradication programs are effective with or without the cooperation of the states.

________10. Our present programs include quarantine of imported livestock.

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Topic Test
on
FOOD AND ANIMAL DISEASES

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

Fill in the blanks:

1. More than________of the food consumed in the U.S. is meat, eggs, poultry, and dairy products.

2. Food supplies in most of the world cannot be ___________ ___ ___________.

3. Men have always been plagued and sometimes destroyed by _____________ ____________________.

4. Cattle and water buffalo mean food, transportation, farm power, and ____________for the soil in many countries.

5. Cattle tuberculosis rate is high enough to be_________________, but low enough to be hard to________.

6. When animals double in number, disease problems increase by __________ _________ .

7. Mobility and mingling of livestock magnify problems of ______________ _____________.

8. It took_________years for hog cholera to spread across the U.S. after it was first diagnosed in 1833.

Topic Test
on
ECONOMIC LOSSES

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

PART I: Fill in the Blanks:

1. Official loss figures usually do not include pigs and lambs lost before ____________ ______.

2. Economic losses are not confined strictly to ______ ______________.

3. An average of about ________ pigs per litter is raised to weaning age.

4. Name three losses that result from internal parasites:

   a. ______________________________________.

   b. ______________________________________.

   c. ______________________________________.

PART II: True or False:

________5. Death losses do not measure the only loss from animal diseases and parasites.

________6. The cost of State and Federal indemnity payments to producers can be charged to animal diseases.

________7. All meat slaughtered in the United States receives Federal inspection.

________8. In poultry, about 300 internal parasites are of economic importance.

________9. Losses from kidney worms are especially serious in swine.

________10. Damage by horn flies and cattle grubs is minor.

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Topic Test
on
DISEASES COMMON TO MAN AND ANIMALS

Student:______________________ School:______________________

Date:______________________ Score:______________________

Fill in the blanks:

1. Of more than 200 communicable diseases of animals,__________are considered infectious to man.

2. Animals carrying disease organisms without being affected by the organism are called__________carriers.

3. Leptospirosis in dogs is spread through the________of diseased animals.

4. Why is the dog probably the most important animal reservoir of disease to man?
____
____

5. Unlike the dog, the____________of the cow are the usual means of disease transmission.

6. Trichinosis is a health problem to man transmitted from __________.

7. Birds, classed as __________, are known to carry diseases that are transmissable to man.

Topic Test
on
PARASITES OF ANIMALS AND MAN

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

True or False:

__________1. Man may be the intermediate or final host for a parasite.

__________2. Bladderworms in the muscles of beef animals are an immature stage of the beef roundworm.

__________3. "Beef measles" is the term applied to beef that is infected with bladderworms.

__________4. Very few people in this country harbor the pork tapeworm.

__________5. Man acquires the fish tapeworm by eating raw or well-cooked fish.

__________6. Routine inspection of hog carcasses will discover those that harbor trichinae.

__________7. Trichinosis has been confused with typhoid fever, undulant fever, and other diseases.

__________8. One intestinal roundworm is a parasite of man.

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Topic Test
on
CAUSES OF DISEASE

PART I: True or False:

__________ 1. Bacteria may or may not produce disease.

__________ 2. Resistance may be built up by vaccination.

__________ 3. All animals have the same resistance to infections.

__________ 4. Bacteria that produce disease are known as pathogens.

__________ 5. Viruses can be seen under an ordinary microscope.

__________ 6. Hog cholera and rabies are caused by viruses.

__________ 7. Bacteria and fungi are plants.

__________ 8. The prefix "phyto" pertains to plants.

__________ 9. Protozoa are usually seen without a microscope.

__________10. Ketosis is an important metabolic disease.

PART II: Fill in the blanks to make true, complete statements:

1. One definition of disease is that it is opposite of ______________.

2. Some bacteria produce poisons, known as ____________________.

3. Four kinds of worm parasites affecting animals are: __________, ______________, ______________, and ____________________.

4. Parasitic arthropods include _________, _________, and ______.

5. __________________ diseases are the ones not caused by viruses, micro-organisms, parasites, or insects.

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Topic Test
on
HOW DISEASES AND PARASITES ARE SPREAD

Student: ____________________ School: ____________________

Date: ____________________ Score: ____________________

Match the number of the term to the proper statement:

1. Spore
2. Carrier
3. Hooksorms
4. Trichinosis
5. Rabies
6. Foot-and-mouth virus
7. Cyst
8. Anaplasmosis
9. Dourine
10. Heelfly

_____ 1. Disease caused by a filterable virus in saliva.

_____ 2. Virus that affects skin membranes.

_____ 3. Hard to kill stage of anthrax.

_____ 4. Animal that carries organism but shows no sign of illness.

_____ 5. Resistant form of protozoan parasite.

_____ 6. Gain entrance into host by boring into its skin.

_____ 7. Transmitted by ticks and horseflies.

_____ 8. Disease caused by eating flesh of animal.

_____ 9. The adult stage of the cattle grub.

_____ 10. Disease spread by copulation.

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Topic Test
on
GENETICS AND DISEASE

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

True or False:

__________ 1. Disease-producing organisms have no genetic make-up.

__________ 2. Environment has a definite relationship with the animal host and the pathogen.

__________ 3. Animals are conceived with certain genetic-potential abilities.

__________ 4. Environment may develop abilities not inherent in the animal.

__________ 5. A chromosome is part of a gene.

__________ 6. Mutations may be induced or occur in nature.

__________ 7. Mutations modify genetic expression in lower organisms as well as in the higher animals.

__________ 8. A bacteria resistant to one antibiotic means that it is resistant to all antibiotics.

__________ 9. Change of expression in a virus does not always indicate a mutation.

__________ 10. The application of genetics to disease control in animals presents no greater problems than that found in plants.

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Topic Test
on
PROTECTION FROM DISEASES AND PARASITES

Student: ______________________ School: ______________________

Date : ______________________ Score: ______________________

PART I: Fill in the blanks:

1. ________________ of infected animals is the best procedure in controlling certain diseases like tuberculosis.

2. The _____ __________ _______ may live through the usual curing process of pork.

3. _______ of anthrax or blackleg organisms live indefinitely in the soil.

4. Pasteur developed vaccines for fowl cholera, ____________, and __________ more than seventy years ago.

5. The use of __________ alone does not usually result in complete eradication.

PART II: True or False:

_______ 1. Individual action is enough to control diseases.

_______ 2. Quarantine measures will stop the spread of any disease.

_______ 3. An animal can infect other animals without showing signs of the disease.

_______ 4. No vaccine is absolutely safe or completely effective.

_______ 5. Some vaccines give immediate and long-lasting protection.

_______ 6. Vaccines, quarantines, and elimination of infected animals have been used for disease eradication.

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Topic Test
on
FEEDING AND MANAGEMENT

Student: __________________ School: __________________

Date: __________________ Score: __________________

True or False:

________1. Feeding will directly increase an animal's resistance.

________2. Minerals help animals resist effects of parasites.

________3. Certain minerals help correct anemia.

________4. Good pastures will furnish adequate nutrition.

________5. Lack of blood sugar may be considered a secondary cause of disease.

________6. Resistance can be lowered by certain types of feeding.

________7. Poor diets are the only cause of dietary deficiencies.

________8. Young animals are the most susceptible to diseases and parasites.

________9. Water is necessary in regulating body temperature.

________10. Horses may be watered before, during, or after feeding without injurious effects.

Topic Test
on
QUARANTINES AND ERADICATION PROGRAMS

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

Fill in the blanks:

1. Quarantines prevent many diseases from ______________________ ______________________ and ______________________.
2. We have had several outbreaks of ______________________ disease, but it is now considered eradicated.
3. The very serious, infectious disease ______________________ has never appeared in the United States.
4. ______________________ is considered the most important step in any importation.
5. Importation regulations did not include ______________ until 1950.
6. Animal by-products, except bones and bonemeal, are permitted unrestricted entry from countries not declared to be infected with ______________________ and ______________________.
7. There are special regulations on imports of bones, horns, hoofs, and bonemeal because of ______________________ disease.
8. The 28-Hour Law was enacted primarily for ______________ reasons.
9. All states make indemnity payments for ______________________.
10. Federal regulations state that no appraisal value shall exceed ______________ times its meat, egg production, or dairy value.

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Topic Test
on
PREVENTION

Student: ____________________ School: ____________________

Date: ____________________ Score: ____________________

PART I: True or False:

__________ 1. Housing and close confinement predispose animals to disease.

__________ 2. All barns should be emptied of animals for one month each year.

__________ 3. It is always safe to spread manure on land.

__________ 4. Pasture rotation should be followed every third year.

__________ 5. Feeding on the ground is usually a safe practice.

PART II: Fill in the following blanks to make true, complete sentences:

1. ______________ air is more favorable for bacterial growth.

2. Manure stored for two to four weeks will ______________ _____ to kill harmful parasites.

3. It is safe to assume that all carcasses are a source of ______________.

4. The most sanitary method of destroying a carcass is to __________ it.

5. A post-mortem examination should be done by _ ______________________.

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Topic Test
on
TREATMENT

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

PART I: Fill in the following blanks to make true, complete, sentences:

1. ____________ and ____________ treatment are called direct therapy.
2. Classifications of drugs according to their effect on the animal are local and ____________.
3. Some antibiotics have ________________ ________________.
4. The use of ________ as a vehicle for giving phenothiazine, iodine, iron, etc. is common.
5. None of the farm animals, except ________, will take bad-tasting drugs by mouth willingly.

PART II: True or False:

________ 1. Good management is part of therapy or treatment.

________ 2. Many drugs have more than one action or effect.

________ 3. Some drugs may be used as direct replacements in the body.

________ 4. It is easy to administer drugs by mouth on most animals that need treatment.

________ 5. Deeply beeded stalls are good for lame animals.

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Topic Test
on
PRINCIPLES OF PARASITE CONTROL

Student: ____________________ School: ____________________

Date: ____________________ Score; ____________________

PART I: Fill in the following blanks to make true, complete sentences:

1. ____________________ of most parasitic infections is unfeasible in practice.

2. The two major methods of controlling parasites are ____________________ and ____________________.

3. Good control measures take advantage of ____________________ influences.

PART II: True or False:

__________ 1. Many losses from parasites are unrecognized.

__________ 2. Parasitism is essentially one of an individual animal.

__________ 3. Every parasite has a fixed life cycle.

__________ 4. Immunity injections are an important method of parasite control.

__________ 5. Nearly all parasites have a stage or phase outside their hosts.

__________ 6. Marketing practices can influence parasitism.

__________ 7. Many internal parasites must overwinter in animals.

__________ 8. Lice survive in small numbers in the winter, but become abundant in the summer.

__________ 9. A proper diet will sometimes prevent or cure infestations.

__________ 10. Few parasites have been controlled by medication alone.

Topic Test
on
INTERNAL PARASITE CONTROL

Student: ____________________ School: ____________________

Date: ____________________ Score: ____________________

PART I: Fill in the following blanks to make true, complete sentences:

1. Two disadvantages of phenothiazine are:

   a. ________________________________.

   b. ________________________________.

2. Sodium flouride treatment for roundworms in swine requires dosing at ____________________.

3. Five other chemicals used to control internal parasites are:

   a. ____________________ c. ____________________

   b. ____________________ d. ____________________

   e. ____________________

PART II: True or False:

__________ 1. Parasites may become resistant to chemical agents.

__________ 2. Sodium flouride has a wider margin of safety than most chemotherapeutic agents.

__________ 3. The build-up of residues is no problem in using chemical agents to control parasites.

__________ 4. Antibiotics may have useful effects in controlling certain internal parasites.

__________ 5. There is need for further developments in controlling internal parasites.

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Topic Test
on
EXTERNAL PARASITE CONTROL

Student:	______________________	School:	______________________
Date:	______________________	Score:	______________________

Fill in the following blanks to make true, complete sentences:

1. Many newer insecticide materials are synthetic ____________ chemicals.

2. Rotenone is still used to control ____________ ____________.

3. ____________ has a rapid paralytic effect on insects.

4. DDT has a low ____________ to animals.

5. ________ and ________ are two chemicals containing the gamma isomer of benzene hexachloride.

6. ____________ insecticides are the newest approach to controlling external parasites.

7. A good insecticide might be described as being ________, ________, and ________.

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Topic Test
on
VETERINARY BIOLOGICAL PRODUCTS

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

True or False:

__________ 1. The "Virus-Serum-Toxin" law went into effect in 1913.

__________ 2. Antibodies stimulate the creation of antigens.

__________ 3. The production procedures for antiserums and antitoxins are much alike.

__________ 4. When using diagnostic antigens, negative reactions indicate no infection.

__________ 5. Tuberculin is a good example of a diagnostic.

__________ 6. All modified-virus vaccines are modified by the same process.

__________ 7. Desiccation (freeze drying) adds stability to vaccines.

__________ 8. For interstate shipment, a biological product must be produced under a United States Veterinary License.

__________ 9. The safety test is applied to biologicals to prevent danger to humans.

__________ 10. Only persons having special training and knowledge of diseases should attempt immunization.

__________ 11. It is a routine procedure for unhealthy animals to be vaccinated.

__________ 12. Heavily parasitized animals are poor vaccination risks.

Topic Test
on
DISINFECTANTS

Student: ______________________ School: ______________________

Date: ______________________ Score:. ______________________

Fill in the blanks to make true, complete sentences:

1. __________ is very caustic so should be handled carefully.
2. If the organism is embedded in ____________ ____________, no disinfection results.
3. ________________ ________________ compounds are disinfectants and wetting agents.
4. Most disinfectants work best at _________ temperatures.
5. Cresols do an effective job with contact periods of _________ or more minutes.
6. Disinfectants sold in interstate trade are checked for ______________ ______________ by Government agencies.
7. ______________ will destroy the tuberculosis organism.
8. The ___________________________ are cheap.
9. A yellow solution is a handy germicidal index for ___________________.
10. Hard waters, particularly those containing iron, slow down the action of ________________ ________________ compounds.

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Topic Test
on
CHEMICAL POISONING

Student: ____________________ School: ____________________

Date: ____________________ Score: ____________________

True or False:

________ 1. The chronic form of arsenic poisoning is hard to diagnose.

________ 2. Treatment is usually of no value in animals poisoned with arsenic.

________ 3. Feed high in calcium and phosphorus or aluminum may reduce the effects of flourine poisoning.

________ 4. Lead is a cumulative poison in the body.

________ 5. There is no antidote for lead poisoning.

________ 6. Grasses rather than legumes are responsible for most molybdenum poisoning.

________ 7. Copper sulphate is used to control diarrhea resulting from molybdenum poisoning.

________ 8. Leaves of oat hay are a common source of nitrate poisoning.

________ 9. Nitrate fertilizer is not palatable to cattle.

________ 10. Salt should always be available to animals.

________ 11. Paralysis and death may follow salt poisoning.

________ 12. Treatment of salt poisoning is usually effective.

Topic Test
on
POISONOUS PLANTS

Student: ________________________ School: ________________________

Date: ________________________ Score: ________________________

Fill in the blanks to make true, complete sentences:

1. ____________________ is probably the major reason for animals consuming poisonous plants.
2. Diagnosis of plant poisoning is best left to the skill of a ________________.
3. A veterinarian may determine the kind of poisonous plant involved by ________________________________ and/or ________________ ____.
4. __________ seldom eat cyanogenetic plants.
5. ____________________ are organic substances containing nitrogen that are similar to the alkalies.
6. A common cultivated plant that produces hydrocyanic acid or prussic acid is ____________________.
7. ____________________ is an oily alcohol and produces a disease known as "trembles" in livestock.

Topic Test
on
TOXICITY OF INSECTICIDES

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

True or False:

________ 1. Petroleum oil in insecticides is never harmful.

________ 2. Used crankcase oil does not contain harmful substances.

________ 3. It is well to follow the dosage recommendation of the manufacturer.

________ 4. Insecticides produced from plants are usually safe for use on livestock.

________ 5. DDT and Methoxychlor are relatively safe chlorinated hydrocarbons.

________ 6. Most synthetic organic insecticides must be absorbed through the skin to become toxic.

________ 7. The digestive system is usually affected by these insecticides.

________ 8. No specific antidote is known for poisoning by chlorinated hydrocarbons.

________ 9. Parathion and malathion are organic phosphorous insecticides.

________ 10. Symptoms of poisoning by all organic phosphorous compounds are similar.

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Topic Test
on
PESTICIDE REGULATIONS

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

PART I::True or False:

_________ 1. Insecticides that are readily stored in animal body are also slow to be eliminated.

_________ 2. The only concern in applying insecticides is to control the insect.

_________ 3. Federal laws apply only to insecticides in interstate shipment.

_________ 4. Dusting is usually less effective than spraying.

_________ 5. Spray materials should be mixed or agitated only once.

PART II: Fill in the following blanks to make true, complete statements:

1. Federal regulations provide for tolerance for ______________ and ________________ of pesticide chemicals.

2. Most wettable powders and emulsions are available in several ________________.

3. When using power sprayers, it is desirable to operate at _____ to _____ pounds pressure.

4. Higher pressure - up to 400 pounds pressure - should be used for controlling __________.

5. Co-Ral should not be used on animals less than _________ months old.

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Topic Test
on
PRINCIPLES OF STERILIZATION

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

PART I: Fill in the following blanks to make true, complete sentences:

1. The destruction of both pathogenic and non-pathogenic organisms is called ______________________.
2. An ______________ condition means that there are no pathogens present!
3. Two practical methods of sterilization are by using __________ and __________.
4. _____ __________ sterilization requires higher temperatures to be effective.
5. An ideal antiseptic is one that _____ ______________ without harming ______________.

PART II: True or False:

__________ 1. Disinfection is usually considered the killing of pathogenic organisms.

__________ 2. Moist heat is more effective than dry heat.

__________ 3. Sterilization by direct flame is not too effective.

__________ 4. 24°C. is about equal to 75°F.

__________ 5. 100°F. is the same as 42°C.

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Topic Test
on
STERILIZING TECHNIQUES

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

True or False:

__________ 1. Sterilization will clean most instruments.

__________ 2. All instruments can be sterilized with moist heat.

__________ 3. Boiling water at 100° C. for thirty minutes is a common method of sterilizing needles.

__________ 4. The time requirement for the boiling water method can be reduced to fifteen minutes by adding 2% sodium carbonate or 0.1% sodium hydroxide.

__________ 5. An autoclave is the only way to sterilize by using steam under pressure.

__________ 6. Dressings and utensils wrapped in cloth should not be crowded in an autoclave.

__________ 7. Direct flame or dry heat may draw the temper of some instruments.

__________ 8. Chemical sterilization is often not effective.

__________ 9. A formalin solution is suitable for chemical sterilization.

__________ 10. Formaldehyde should be allowed to evaporate or be rinsed off instruments.

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Topic Test
on
PREPARING HANDS AND FIELD OF OPERATION

Student: ____________________ School: ____________________

Date: ____________________ Score: ____________________

Fill in the following blanks to make true, complete sentences:

1. Bacterial population of skin is composed of ________________ and ________________ bacteria.
2. ________________ bacteria are more difficult to remove or destroy.
3. Finger nails should be ________________ __________ and kept ________.
4. After cleansing hands, a ________________ should be used for its effect on remaining bacteria.
5. The germicidal efficiency of alcohol will be maintained if hands are _____.
6. Using the most effective disinfection method will not make the hands ______________.
7. After shaving and cleansing the field of operation, a ________________ should be applied.
8. Alcohol solutions and iodine should be allowed to _____ ________________ to increase their efficiency.

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931-VIII-4
Page 5

Topic Test
on
STERILE GLOVES AND GOWN

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

Fill in the following blanks to make true, complete sentences:

1. The operator and assistants must wear sterile gloves if the operation is to be ____________.
2. Gloves are placed in the sterilizer on edge with thumbs up with pad of gauze in each cuff to insure proper interchange of ________ and _____.
3. Gloves are sterilized at ____ pounds pressure and ____°F. for _____ minutes.
4. When using the dry-glove technique, the hands should be ____________.
5. The liquid used in the wet-glove technique should be a ______________ solution.
6. The ____________ surface of the sterile glove should never be touched.
7. To unroll the sterile gown, it should be held at the ________.
8. While putting on the sterile gown, it is held at the ____________.

Topic Test
on
RESTRAINING ANIMALS

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

True or False:

_____ 1. Moral restraint is often over-looked in handling animals.

_____ 2. Knowledge and the ability to exercise moral restraint is quickly and easily acquired.

_____ 3. Gentle animals can be turned into excited and rebellious patients by using severe restraint methods.

_____ 4. Sedatives and anesthetics are effective methods of restraint.

_____ 5. The least harsh restraint needed should be used.

PART II: Fill in the blanks:

1. To select a method of restraint, one should keep in mind the following three points:

   a. ______________________________

   b. ______________________________

   c. ______________________________

2. Anyone handling an animal should be __________ and ____________________.

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Topic Test
on
COMMON KNOTS

Student: ______________________________ School: ______________________________

Date: ______________________________ Score: ______________________________

Fill in the blanks or underline the correct word or words to make each statement true:

1. The knot which is the basis for many others is the ____________________ knot.
2. Ends of rope can be prevented from unraveling by ____________________ or ____________________.
3. The (Granny Knot, Reefer's Knot) is much like the square knot, but will slip under strain.
4. The (square, surgeon's) knot will be held fast by the first part of the knot while the second part is being tied.
5. The ____________________ is used to make a loop or noose that will not tighten or "draw down."
6. The center of a long rope can be secured to an object with the (Weaver's, Lark's Head) knot.
7. The ______________ knot is used to tie two of an animal's legs.
8. The (slip knot, bowline) is not easy to untie after strain is put on the rope.
9. The slip knot and halter tie are very much (alike, different).
10. Using small cord or rope, tie five different knots or hitches.

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Topic Test
on
RESTRAINING DOGS AND GIVING MEDICATION

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

True or False:

_____ 1. There is not much variation in temperament and personality of dogs.

_____ 2. Some dogs may be restrained for examination merely by placing them on a slippery table high off the floor.

_____ 3. A snare or tongs placed around the neck will hold a vicious animal at a safe distance.

_____ 4. A small dog should be lifted and carried with both hands under the body of the dog.

_____ 5. When carrying a large dog, the injured side should be next the the body of the handler.

_____ 6. A muzzle with an overhand knot is more effective than with a surgeon's knot.

_____ 7. A dog's mouth is opened by pulling his lower jaw down.

_____ 8. It is not necessary to open a dog's mouth to give him liquid medicine.

_____ 9. An opthalmic hood is used to protect eye bandages.

_____ 10. Physical force alone is not sufficient for intravenous injection.

Topic Test
on
RESTRAINING CATS

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

1. When examining a cat, it is well to place him on a ________ __________ glass or metal table.

2. A cat snare can be made from a light _____ with a _____ passing through it.

3. When holding a cat, the legs should be separated by a ______________.

4. For carrying a cat a long distance, a ________________ should be used.

5. A good cat sack has a ________________ at the top and a _____ at one bottom corner.

6. ____________ __________ may be used to prevent a cat from scratching body or head wounds.

7. Screen wire in a wooden frame may be used to aid in __________ a cat.

8. When placing a pill on the back of a cat's tongue, the lower jaw is pushed down with a ______________.

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Topic Test
on
RESTRAINING HORSES

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

True or False:

_____ 1. The twitch is one of the oldest and most commonly used methods of horse restraint.

_____ 2. A twitch should never be used on the ears of a horse.

_____ 3. It is better to use a hopple instead of a rope on a leg.

_____ 4. The King hopple is the same as a pastern hopple, but it has a rope attached.

_____ 5. The Yankee War Bridle has the same principle as a twitch.

_____ 6. Much of a horse's weight can be raised or moved by a tail tie rope.

_____ 7. Rope stocks offer very little restraint.

_____ 8. The hippo-harness is a good restraint for an animal that is likely to kick.

_____ 9. A rope sling can be used for prolonged support.

_____ 10. A steel speculum should be used for any examination of the hoof.

_____ 11. A newborn foal should be held by an ear and the tail.

_____ 12. None of the casting harnesses are dangerous to the horse.

Topic Test
on
CATTLE RESTRAINT

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

Match numbers with related term or statement:

1. Rope
2. Bosshart tray
3. Handle
4. Speculum
5. Tail rope
6. Rope squeeze
7. Tail restraint
8. Hock twitch
9. Stomach tube
10. Staff

_____ a. Mouth examination
_____ b. Colorado Gag
_____ c. Bull lead
_____ d. Diverts attention
_____ e. Prolapsed uterus
_____ f. Iowa cattle leader
_____ g. Prevent kicking
_____ h. Nose lead
_____ i. Removing placenta
_____ j. Method of casting

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Topic Test
on
CATCHING AND RESTRAINING SWINE

Student: ______________________________ School: ______________________

Date: ________________________________ Score: ______________________

True or False.

_____ 1. A hurdle is used to restrain pigs while vaccinating is done.

_____ 2. A pig catcher is a device that clamps around a rear leg to catch the pig.

_____ 3. A snare is used to catch the rear leg of a pig.

_____ 4. Large balky hogs can be moved easily by driving them forward.

_____ 5. A small pig should not be lifted by his tail or ears.

_____ 6. A rope cannot be used to catch a large pig.

_____ 7. A snubbing rope is placed around the upper jaw behind the tusks.

_____ 8. Small pigs must be tied for castration.

_____ 9. A pig should never be cast by pulling his legs out from under him.

_____ 10. English hopples provide a practical and quick way of casting large hogs.

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Topic Test
on
RESTRAINING SHEEP AND GOATS

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

True or False:

_____ 1. A sheep's usual defense is to run.

_____ 2. Sheep have a frail skeletal system.

_____ 3. It is well to have sheep in close confinement when they must be handled.

_____ 4. A sheep should be caught by his rear leg below the hock.

_____ 5. One easy, correct way to catch a sheep is by grasping his wool.

_____ 6. For castration, a lamb is held by his rear legs with his neck between the legs of the handler.

_____ 7. When being drenched, the sheep's nose should not be raised above the level of the eyes.

_____ 8. Other than fence requirements, goats can be restrained like sheep.

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Topic Test
on
RESTRAINING LABORATORY ANIMALS AND POULTRY

Student: ______________________________ School: ______________________

Date: ______________________________ Score: ______________________

True or False:

_____ 1. A rat should never be carried by his tail.

_____ 2. A rat jacket is used to keep the animal warm.

_____ 3. A mouse should not be lifted by his tail.

_____ 4. A laboratory rabbit should be lifted by his ears.

_____ 5. Rabbits should be placed on a smooth surface.

_____ 6. Hampsters should be held by the nape of the neck with his rump supported

_____ 7. Crossing a chicken's wings will not restrain it.

_____ 8. A turkey is carried the same way as a chicken is carried.

_____ 9. A canary should not be handled unless absolutely necessary.

_____ 10. A goose should be caught by its neck.

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Topic Test
on
LAWS RELATED TO THE VETERINARY PRACTICE

Student: ____________________ School: ____________________

Date: ____________________ Score: ____________________

True or False:

_____ 1. Most Veterinary Practice Acts define veterinary practice.

_____ 2. The educational requirements are not the only personal qualifications to be met to receive a license.

_____ 3. Once issued, a license to practice can not be suspended or revoked.

_____ 4. Exceptions to the practice acts usually include serum injections and dehorning.

_____ 5. In most cases, the employer is responsible for the actions of the employee during working hours.

_____ 6. As assistant may give shots and carry out other duties under the direct supervision of the veterinarian.

_____ 7. The veterinarian is liable for any injury to the assistant.

_____ 8. The veterinarian should not be concerned with food and feed laws nor narcotic regulations.

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Topic Test
on
FIRST AID

Student: ______________________________ School: ______________________

Date: ______________________________ Score: ______________________

1. Emergency first aid measures must be carried out with ____________ ____________________ and only when the veterinarian is not available.

2. The animal should be ______________ ______________ when being moved or restrained.

3. The gums of a healthy animal will be a __________ color.

4. An animal in shock should be kept __________ and __________.

5. The veterinarian will be needed to control ______________ hemorrhage.

6. The blood from an artery will be __________ _____ and in __________.

7. Most bleeding can and should be controlled by _______ ____________ or by __________ __________.

8. To prevent movement of a broken leg, a ______________ __________ may be applied.

9. ______________ ______________ should not be applied to animals with possible chest injuries.

10. An animal suspected of having __________ should not be handled directly.

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Topic Test
on
SIMPLE ANATOMY OF ANIMALS

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

1. ______________ have a stomach with four compartments.

2. Ruminants are able to digest large quantities of ____________ because of the ____________ action in the rumen.

3. The ______________ is the true stomach of the ruminant.

4. The ______________ catches and holds nails, wire, and other foreign materials.

5. High fiber rations are better utilized by ____________ than ____________.

6. The ________ of the calf does not develop and function until several days after birth.

7. The first milk after freshening is called ______________________.

8. The reproductive cell of the male is called the ______; the female cell is called the ________.

9. The eggs are produced in the female by the ________.

10. Hormones ____________ or ____________ many body functions.

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Topic Test
on
USING X-RAY EQUIPMENT

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

1. Measurements for thickness of animals are made in ______________.

2. The thickness measurement and ____________ ____________ are used to determine the proper machine settings.

3. Any milliampere change will change the ______________.

4. A constant distance of _____ inches is a good procedure to use.

5. The highest KVP and ma settings possible will ________ the exposure time.

6. The animal should be measured accurately with a ____________.

7. A _______ is a sheet of lead strips used between the animal and cassette to prevent scattered radiation.

8. A cassette ____________ or ____________ should be used to hold the film in a vertical position

9. The view terms ___________ and ___________ are limited to the head, neck, body, and tail.

10. To refer to leg views, ______________ refers to the front and ______________ refers to the rear view.

11. Every person in the x-ray room should wear a ______ ________.

12. Lead gloves and aprons can be checked for deterioration by ____________.

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Topic Test
on
DEVELOPING X-RAYS

Student: ______________________________ School: ______________________

Date: ________________________________ Score: ______________________

1. The equipment for processing should include a bench for unloading and loading ______________.

2. The developer and fixer solutions should be ______________ before and during insertion of film.

3. The desirable temperature for water and solutions is ______.

4. When the developer solution turns a brown color, it should be ______________.

5. Developing chemicals may be in __________ or __________ form.

6. The film should be well ______________ before being placed in the fixer.

7. The light should not be turned on until the film has been in the __________ at least _____ __________.

8. Films that are not "fixed" will become ______________ .

9. If the temperature varies from 68°F., the ________________________ __________ should be used.

10. Solutions should be ______________ when not in use.

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Topic Test
on
SURGICAL INSTRUMENTS AND TERMINOLOGY

Student: ____________________ School: ____________________

Date: ____________________ Score: ____________________

True or False:

_____ 1. There is no difference in surgical and bandage scissors.

_____ 2. Surgical scissors may have straight or curved blades.

_____ 3. Most hemostats will have a box lock.

_____ 4. There is only one size of burdizzos.

_____ 5. Tube dehorners are only used on young animals.

_____ 6. Syringes may have rubber, glass, nylon, metal, or ceramic plungers.

_____ 7. Transfer needles have a point on each end.

_____ 8. Sutures are all nylon or catgut.

_____ 9. OB chains are used to control old bulls.

_____10. An equine catheter may be as long as 5 feet.

_____11. Hoof nippers have one sharp and one dull blade.

_____12. Enterotome scissors have one probe-point blade.

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Topic Test
on
SURGERY PREPARATION AND PROCEDURES

Student: ____________________ School: ____________________

Date: ____________________ Score: ____________________

True or False:

_____ 1. The surgery room should have windows open for ventilation.

_____ 2. Sterile bundles be put in place and opened.

_____ 3. Caps and masks should be freshly laundered, but need not be sterile.

_____ 4. Any table may be moved by anyone by any method.

_____ 5. The operator and assistant should cover their face, head, and hair with a cap and mask.

_____ 6. Most operations will not require the removal of hair on the operative area.

_____ 7. Cotton or gauze should be used to determine if the area is free of dirt.

_____ 8. The antiseptic should be applied with a circular motion.

_____ 9. The antiseptic should contain a dye to outline the area.

_____ 10. The antiseptic should be wiped dry with a sterile cloth.

_____ 11. Caps, masks, and other linens should be laundered and sterilized.

_____ 12. After equipment is cleaned and replaced in storage, the room should be scrubbed and disinfected.

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Topic Test
on
PRINCIPLES OF ANESTHESIA

Student: ______________________________ School: ____________________

Date: ________________________________ Score: ____________________

1. Two reasons for using anesthetics on animals are:
   a. ________________________
   b. ________________________
2. One anesthetic may be ideal for one animal, but ______________ to another.
3. ______________ anesthetics influence the entire nervous system.
4. The type of anesthetic to use may be determined by several factors which include the following two:
   a. ________________________
   b. ________________________
5. Ether is usually considered very _______ for the patient.
6. ______________ or ______________ with atropine are often given prior to ether to reduce flow of secretions and to cam the animal.
7. The amount of anesthetic given will depend on the ______________ of the individual animal.
8. The anesthetic to use and the dosage calculation should be determined by the ________________________.

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Topic Test
on
HANDLING AND CARING FOR DRUGS

Student: ______________________ School: ______________

Date: ______________________ Score: ______________

True or False:

_____ 1. Many products need to be stored in a cool place where no sunlight can enter.

_____ 2. Products needing reconstitution should be used immediately after being reconstituted.

_____ 3. The expiration date on most products is based on poor storage conditions.

_____ 4. A product should be used if the expiration date is not more than two months earlier than the present date.

_____ 5. The easiest method is the best way to discard bottles and containers.

_____ 6. The supplies in the veterinarian's car or truck should be checked and replenished regularly.

_____ 7. A coding system for handling and storing supplies should be simple.

_____ 8. Obsolete drugs need not be listed in the coding system.

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Topic Test
on
COLLECTING AND HANDLINE SEMEN

Student:____________________ School: ____________________

Date: ____________________ Score: ____________________

Fill in the blanks to make true, complete statements:

1. ____________ or ____________ should not be used to wash artificial insemination equipment.

2. Probably the most satisfactory method of collecting semen is the ____________ ____________.

3. ____________ ____________ are of more importance than semen volume in artificial insemination.

4. Liquid semen can be packaged for shipment to keep suitable temperatures for about ____________ ____________.

5. Unfrozen semen from ____________ can be stored longer than that from other classes of animals.

6. As many as 500 females may be bred with one ejaculate from a ________.

7. It is necessary to add ____________ to freshly collected semen.

8. When semen is frozen, ____________ must be included in the diluter.

9. To control vibrio fetus or vibriosis, antibiotics are added to the diluter at least ____________ ____________ before insemination.

10. __________ __________ is a common ingredient of semen diluters.

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Topic Test
on
ARTIFICIAL INSEMINATION

Student: ____________________ School: ____________________

Date: ____________________ Score: ____________________

True or False:

_____ 1. Artificial insemination increases the use of outstanding sires.

_____ 2. Careless procedures may spread disease.

_____ 3. Females need no special preparation for insemination.

_____ 4. All animals ovulate at the same time during the heat period.

_____ 5. Cows should be inseminated soon after the end of the heat period.

_____ 6. The highest rate of conception is obtained when semen is deposited in the cervix or uterus.

_____ 7. Gelatin capsules containing semen are deposited in the cervix of mares.

_____ 8. A catheter is usually used with cows and sows.

_____ 9. A veterinarian should examine females that have been bred three times without conception.

_____10. There has been little interest in and much resistance to artificial insemination of horses.

Topic Test
on
REPRODUCTION AND PALPATION

Student: ______________________________ School: ______________________

Date: ________________________________ Score: ______________________

Fill in the blanks to make true, complete statements:

1. The reproductive cells of the male and female are called the __________ and _________, respectively.

2. The ____________ maintains the testicles at temperatures lower than body temperatures.

3. The testicles produce sperm and the male hormone, __________________.

4. The new individual formed by the union of the sperm and egg is called the _______________.

5. The process of a Graafian follicle rupturing and discharging an egg is known as ___________________.

6. The egg-containing follicles secrete the female sex hormone, _____________.

7. The heat period in cows normally lasts _________ to ________ ___________.

8. Sperm live only _____ to _____ hours in the female reproductive tract.

9. The ________ __________ is the most common test of pregnancy.

10. The fetal heart beat may be detected after the _______ month of pregnancy.

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Topic Test
on
ASSISTANCE AT BIRTH

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

True or False:

_____ 1. Abnormal presentations should have the assistance of a veterinarian.

_____ 2. Normal presentations should be complete within one to two hours.

_____ 3. Abnormal positions of the fetus should be corrected before traction is applied.

_____ 4. The fetus should never be delivered with the back of the fetus in a downward position.

_____ 5. If rotation of the fetus is necessary, delivery should be made by traction as soon as possible.

_____ 6. Prolonged labor in a breech presentation can be dangerous to the fetus.

_____ 7. When assisting in delivery, speed is more important than careful and sanitary methods.

_____ 8. Colostrum is good, but not too important for the well-being of the new-born young.

_____ 9. The assistance of a veterinarian is needed if the placenta is not expelled within 24 hours after parturition.

_____ 10. The animal should be allowed to consume the placenta.

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Topic Test
on
MEAT INSPECTION

Student; ______________________________ School: ____________________

Date: ________________________________ Score: ____________________

Match appropriate number to term or statement:

1.	Meat Inspection Act	_____	a. Lumbar vertebrae
2.	Neck	_____	b. Rear leg
3.	Abdomen	_____	c. Separates thorax and abdomen
4.	Lymps nodes	_____	d. Carcass and internal organs
5.	Ductless glands	_____	e. Peritoneum
6.	Post-mortem	_____	f. Cervical vertebrae
7.	Six	_____	g. Hog Cholera
8.	Thymus	_____	h. Meat for interstate shipment
9.	Femur	_____	i. Hormones
10.	Diaphragm	_____	j. Closes trachea
11.	Condemned carcass	_____	k. Foreign bodies
12.	Epiglottis	_____	l. Sweetbread

Topic Test
on
POST-MORTEM EXAMINATIONS

Student: ______________________________ School: ______________________

Date: ________________________________ Score: ________________________

PART I: Fill in the blanks to make true, complete statements:

1. The speed of post-mortem changes is especially affected by ______________.

2. Disposition of the carcass, ______________________, and ______________ should all be considered in selecting a place for the post-mortem.

3. Emphysema refers to a body part distended or filled with __________.

4. Asphyxia refers to ______________________.

5. Enteritis is an ________________ inflammation.

PART II: True or False:

_____ 1. Post-mortem examinations should be performed soon after death.

_____ 2. The examination should be made any where it is convenient to do so.

_____ 3. It is not necessary to disinfect or sterilize post-mortem instruments.

_____ 4. Leucocytes are red blood corpuscles.

_____ 5. Nephritis refers to an infection of the liver.

_____ 6. Edema or dropsy refers to swelling due to excess fluids.

_____ 7. Gastritis refers to a stomach inflammation.

_____ 8. Necrosis means death of tissue.

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Topic Test
on
PRINCIPLES OF GENETICS

Student: ______________________________ School: ______________________________

Date: ______________________________ Score: ______________________________

PART I: Complete the following statements:

1. All hereditary characteristics of an individual are determined by _________.

2. In each body cell and germ cell, the genes are carried on _______________.

3. A sperm or egg contains _____________ of the chromosomes and genes found in the body cells.

4. The _______ parent determines the sex of the offspring.

5. ___________ the offspring of a heterozygous, polled bull (Pp) and a homozygous, horned cow (pp) will be polled.

PART II: Match the following:

1. Mutation
2. Y chromosome
3. Recessive
4. Dominant
5. Dizygotic
6. Crossbreeding
7. Lack of dominance
8. Prepotency

_____a. Sperm
_____b. Dwarfism
_____c. Polled
_____d. Gene Changes
_____e. Shorthorn Color
_____f. Homozygosity
_____g. Heterozygous
_____h. Twins

Topic Test
on
PRINCIPLES OF FECAL EXAMINATIONS

Student: ________________________ School: ________________________

Date: ________________________ Score: ________________________

True or False:

_____ 1. If the fecal sample is not examined soon after collection, refrigeration may be desirable.

_____ 2. Preservation by refrigeration or in a formalin solution will not destroy any larvae or parasites.

_____ 3. The direct smear method is the most accurate method of microscopic examination.

_____ 4. The direct smear method is valuable in detecting coccidiosis in cattle and sheep.

_____ 5. A flotation solution must have the correct specific gravity.

_____ 6. Centrifugal force is helpful in separating the ova from the fecal particles.

_____ 7. The ova are more concentrated after the flotation method is used.

_____ 8. The color and consistency of fecal samples should be noted.

_____ 9. The presence of mucous or blood in the feces is not important.

_____ 10. Adult parasites cannot be seen without the aid of a microscope.

Topic Test
on
PRINCIPLES OF BLOOD EXAMINATIONS

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

Match the following:

1. Erythrocytes
2. Jugular vein
3. White blood cells
4. Prevent clotting
5. Hematocrit determination
6. Indirect method
7. Coagulation time
8. Hemoglobin
9. Spreading and Staining
10. Blood compatability

_____ a. Anticoagulant

_____ b. Leukocytes

_____ c. Blood-Acid Mixture

_____ d. Colorimeter

_____ e. Cattle and horses

_____ f. Slide smears

_____ g. Red blood cells

_____ h. Transfusions

_____ i. PCV

_____ j. Bleeding time

Topic Test
on
PRINCIPLES OF BACTERIOLOGY TESTS

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

True or False:

_____ 1. All veterinarians should conduct all bacteriological tests and examinations in their clinic.

_____ 2. Any one of the four methods of bacteriological procedures can be used successfully in diagnosing all diseases.

_____ 3. Morphology refers to form or shape.

_____ 4. Bacilli bacteria are spherical shaped.

_____ 5. Gram-positive organisms are stained blue.

_____ 6. Iodine is used to fix the blue color in the Gram-negative organisms.

_____ 7. An incubator and proper media are necessary for growth of cultures.

_____ 8. The agglutination test is a commonly used serological test.

_____ 9. Tests used in control or eradication programs may be regulated by state or federal agencies.

_____ 10. Animal inoculation is used because it is fast and easy.

Topic Test
on
PRINCIPLES OF URINE EXAMINATIONS

Student; ______________________________ School: ______________________________

Date: ______________________________ Score: ______________________________

PART I: Fill the blanks to make true, complete statements:

1. A __________ container free from foreign material should be used to collect urine.

2. A _______________ can be used to collect urine samples from cows but cannot be used with bulls.

3. The quantity measurement of urine refers to the amount urinated in a _______________ period.

4. The specific gravity is measured with a ____________________________.

5. The normal urine from horses is usually not __________.

PART II: True or False:

_____ 1. Catheters can be used on male or female horses.

_____ 2. The normal color of urine is red or brownish red.

_____ 3. Chemical examination usually includes tests for albumin, sugar, and bile.

_____ 4. Field urinalysis is not possible.

_____ 5. Microscopic examination of a urine sample follows centrifugation.

Topic Test
on
BACTERIAL DISEASES

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

True or False:

_____ 1. Anthrax may affect all warm-blooded animals and man.

_____ 2. Anthrax and blackleg can be prevented by vaccination.

_____ 3. Abortion is the most characteristic symptom of brucellosis.

_____ 4. Pneumonia will often accompany calf scours.

_____ 5. Swine enteritis has more than one form.

_____ 6. Lambs in the feed-lot are susceptible to enterotoxemia.

_____ 7. One sign of erysipelas is a yellowish color of the belly.

_____ 8. Leptospirosis results in large numbers of abortions.

_____ 9. Mastitis is always infectious.

_____ 10. Pinkeye is not contagious to other animals.

_____ 11. Vaccination offers no protection for shipping fever.

_____ 12. A tetanus infection is usually associated with a wound.

_____ 13. Pullorum is transmitted to the chick through the egg.

_____ 14. Poultry can be immunized for protection against typhoid.

_____ 15. Recovery from fowl cholera is common.

Topic Test
on
VIRUS DISEASES

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

PART I: Complete the following statements:

1. Blue tongue is caused by a virus transmitted by an __________.

2. Hog cholera symptoms may be confused with ______________.

3. Cow pox affects the __________ of the cow.

4. Transmissable gastroenteritis (TGE) is a disease of young ______.

5. New castle disease affects the ________________ system of the bird.

PART II: Match the following:

1. Sleeping sickness	____	a. Swine influenza
2. Intense itching	____	b. Equine infectious anemia
3. Furious form	____	c. Newcastle disease
4. Sit up like dogs	____	d. Leukosis
5. Swamp fever	____	e. Equine encephalomyelitis
6. Similar to foot-and-mouth-disease	____	f. Scrapie
7. Similar to bronchitis	____	g. Coughing
8. Gray-eye	____	h. Rabies
9. Skin and comb	____	i. Fowl pox
10. Virus pneumonia	____	j. Vesicular exanthema

Topic Test
on
PARASITIC DISEASES

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

True or False:

_____ 1. Cattle with anaplasmosis usually have a rapid heart action and difficulty in breathing.

_____ 2. Cattle tick fever symptoms include red to black urine.

_____ 3. Coccidiosis affects only poultry.

_____ 4. The grub is the larval stage of the horn fly.

_____ 5. The adult stages of the horn fly, heel fly, and stablefly do not excite or disturb cattle.

_____ 6. Both lice and mites cause intense irritation and severe itching.

_____ 7. A sheep bot infestation is commonly called grub-in-the-head.

_____ 8. The symptoms of ascarids in swine do not includecoughing.

_____ 9. Horses infested with strongyles do not exhibit any visible symptoms.

_____ 10. Blackhead is not as serious in chickens as in turkeys.

Topic Test
on
NUTRITIONAL DISEASES

Student: ____________________ School: ____________________

Date: ____________________ Score: ____________________

Match the following:

1. Reluctance to walk
2. Hypoglycemia
3. Goiter
4. Ketosis
5. X-Disease
6. Bloat
7. Head turned to side
8. Vitamin A deficiency
9. Severe pain, profuse sweating
10. Anemia

_____ a. Lush legume pastures

_____ b. Colic

_____ c. Milk fever

_____ d. Baby pig shakes

_____ e. Iron deficiency

_____ f. Iodine deficiency

_____ g. Founder

_____ h. Night blindness

_____ i. Oil and grease

_____ j. Pregnancy disease

Topic Test
on
FUNGAL AND MISCELLANSOUS DISEASES

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

True or False:

_____ 1. Atrophic rhinitis affects the snout and face of swine.

_____ 2. Reddish purple patches of dead tissue on the edges of the tongue are a sign of calf diptheria.

_____ 3. Edema disease usually affects the stunted, slow-growing pigs.

_____ 4. Lameness is usually the first symptom of foot rot.

_____ 5. Foot rot will have a characteristic foul odor.

_____ 6. Lumpy jaw is usually confined to the soft tissue of the lower jaw.

_____ 7. Wooden tongue affects only the tongue.

_____ 8. Ringworm is contagious.

Topic Test
on
REPRODUCTIVE PROBLEMS

Student: ______________________________ School: ______________________________

Date: ______________________________ Score: ______________________________

Fill in the blanks to make true, complete statements:

1. A cow's failure to come into heat is called _______________.

2. Temporary or permanent reproductive failure is called _____________________.

3. Specific genital diseases include metritis, trichomoniasis, vaginitis, vibriosis, ____________________, and ____________________.

4. The time of breeding should be synchronized with ____________________.

5. Improper feeding may imply uncommonly high or low feed intake or a ____________________ of specific nutrients.

6. Genetic abnormalities include ____________ genes.

7. Heifers born twin with a bull are usually _______________.

8. An undescended testicle is usually sterile because of the _______ ____________________ in the abdomen.

9. Four criteria of semen quality are:

   a. ____________________________________

   b. ____________________________________

   c. ____________________________________

   d. ____________________________________

10. Two causes of psychological sterility of bulls are:

    a. ____________________________

    b. ____________________________

Topic Test
on
ESSENTIAL FOOD NUTRIENTS

Student: ____________________ School: ____________________

Date: ____________________ Score: ____________________

1. Nitrogen-free extract is that portion of ________________ containing the more easily digested __________ and __________.

2. Both fats and oils are referred to as ______.

3. During digestion, proteins are broken down into ________ ________.

4. In addition to carbon, hydrogen, and oxygen, proteins contain __________.

5. A ration should contain a variety of protein sources to furnish the required ________ ________.

6. Nutrients must be in ________ form before they can be absorbed by the body.

7. Heat and energy are furnished by ________________ and ______.

8. The formation of body cells is especially dependent on a supply of __________.

9. Minerals are needed in nearly all parts of the body, but are primarily used in forming ________ and ________.

10. The amount of ________ in a feed reduces the digestibility.

Topic Test
on
CLASSES OF FEED

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

Match the following:

1. Roughage	_____	a. High digestibility
2. Animal or vegetable	_____	b. Higher in protein
3. Calcium	_____	c. Stage of maturity
4. Legume hays	_____	d. 40% Nitrogen
5. Calcium and phosphorus	_____	e. Vitamin A
6. Concentrates	_____	f. Fiber
7. Urea	_____	g. High in fat
8. Nutrient value	_____	h. Protein concentrate
9. Soybeans	_____	i. Steamed bone meal
10. Green plants	_____	j. Limestone

Topic Test
on
DIGESTION, ABSORPTION, AND USE OF NUTRIENTS

Student: ____________________ School: ____________________

Date: ____________________ Score: ____________________

Match the following:

1. Saliva
2. Glycogen
3. Cellulose
4. Trypsin
5. Mastication
6. Amino Acids
7. Compound Sugars
8. Lipase
9. Rennin
10. Rumination

_____ a. Invertases

_____ b. Chewing

_____ c. Regurgitation

_____ d. Fats

_____ e. Ptyalin

_____ f. Milk

_____ g. Bacteria

_____ h. Protein

_____ i. Animal starch

_____ j. New Tissue

Topic Test
on
FEEDING STANDARDS

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

1. What five things does a feed Analysis Table usually include about common feeds?

   a. __________________________.

   b. __________________________.

   c. __________________________.

   d. __________________________.

   e. __________________________.

2. What must be considered before using a feeding standard?

   a. __________________________.

   b, __________________________.

   c. __________________________.

   d. __________________________.

3. What must be known to use a feed analysis table?

   a. __________________.

   b. __________________.

Topic Test
on
FACTORS TO CONSIDER IN FORMULATING FEEDS

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

Place a check under T for true or under F for false for each of the following statements:

T F

_____ _____ 1. Protein is not a limiting nutrient in a ration.

_____ _____ 2. Quality of protein is changed by less nutritious feed.

_____ _____ 3. Lowest cost rations are not always best.

_____ _____ 4. Variety in a ration makes a mixture more palatable or taste better to the animal.

_____ _____ 5. All animals can digest or handle great amounts of fiber.

_____ _____ 6. Dairy animals use little fiber.

_____ _____ 7. Minerals should be in the ration or fed free choice.

_____ _____ 8. Vitamins are not needed in extra amounts for cattle as long as they have feed.

_____ _____ 9. Young animals and chicks need rations fortified with vitamin D and/or A.

_____ _____ 10. Some classes of cattle, such as high-producing cows, need added carbohydrates and fats for extra energy.

Topic Test
on
COMMON METHODS OF BALANCING RATIONS

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

Fill in the following blanks:

1. Two common methods in balancing rations are:

   a. ____________________________________.

   b. ____________________________________.

2. ______________________ and ______________________ table must be available before starting to balance rations.

3. ______________ is given more consideration on balancing with the "Square" method.

Topic Test
on
CONTROLLING RODENTS AND BIRDS

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

1. Anticoagulants are ____________ ______ poisons.

2. Anticoagulants kill by causing ________ ________ .

3. __________, ______ trays make the best poison containers for rats.

4. A bait container should not be empty for more than ______ ______.

5. Baiting for rats should continue at least ________ ________.

6. In addition to poisoning rats, the premises should be ________ ______ and buildings ______________.

7. A ____________ feeding period is required in controlling mice.

8. To control mice, ________ bait stations are needed than for rats.

9. The same poison bait may not work for all __________ __________.

10. To control birds, ____________ should be the last resort.

Topic Test
on
MAINTENANCE AND PAINTING PROCEDURES

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

True or False:

_____ 1. Doors, windows, and other openings are deducted when figuring total surface area to determine quantity of paint.

_____ 2. Whitewash should contain salt and cement.

_____ 3. Dark colors tend to give impression of greater size.

_____ 4. New wood and metal should be primed before painting.

_____ 5. Old surfaces must be properly prepared for a durable paint job.

_____ 6. Moisture ruins paint jobs by making them blister and peel.

_____ 7. For best results, it is best to follow the recommendations on the paint container.

_____ 8. It is usually better to apply one thick coat than two thin coats.

_____ 9. All paints should be cleaned from brushes with hot water and soap.

_____ 10. Many paints contain lead which is poisonous to animals.

Topic Test
on
FENCE BUILDING PRINCIPLES

Student: ________________________ School: ____________________

Date; ________________________ Score: ____________________

PART I: Fill in the blanks to make true, complete statements:

1. A No. 1155 woven wire means that it is _____ ________ in height.

2. A No. 9 wire is ____________ than a No. 11 wire.

3. Barbed wire is usually _______ gauge.

4. The amount of fencing needed is determined by the _______ and _______ of the area.

5. When using wood posts, a __________ _______ corner arrangement is preferable to a __________ _____ brace.

PART II: True or False:

_____ 1. Woven wire should be stretched until the tension curves are straight.

_____ 2. There is no possibility of an electric fence being dangerous.

_____ 3. An electric fence for cattle or horses should be 30 to 40 inches high.

_____ 4. An electric fence for sheep or swine should have two wires.

_____ 5. Dog-proof fencing requires a minimum height of six feet.

Topic Test
on
MIXING CONCRETE

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

Match the following:

1. 1 Cubic Yard	____	a. Cement and water
2. Moisture in sand	____	b. 94 pounds
3. Rough finish	____	c. Oiled
4. Aggregates	____	d. Reinforcing
5. Rod or mesh	____	e. 27 Cubic feet
6. 1 Sack of cement	____	f. Steel trowel
7. Placing	____	g. Sand and gravel
8. Smooth finish	____	h. Squeeze in hand
9. Forms	____	i. Wood float or broom
10. Constant in each mix	____	j. Eliminate air pockets

Topic Test
on
WEED AND BRUSH CONTROL

Student: ______________________ School: ______________________

Date: ______________________ Score: ______________________

True or False:

_____ 1. The top growth of perennials is never killed during the winter.

_____ 2. Biennials do not produce seed.

_____ 3. One chemical can usually be selected to control all weeds.

_____ 4. Grasses are never considered to be weeds.

_____ 5. Directions and precautions on the herbicide container label should be followed.

_____ 6. Drift of herbicide vapors or mist may damage desirable plants.

_____ 7. Herbicides should not be inhaled, swallowed, or allowed to contact the skin.

_____ 8. All herbicides are poisonous and toxic to animals.

_____ 9. The herbicides 2,4-D and 2,4,5-T are growth regulating substances.

_____ 10. Carbon bisulphide and the chlorates are flammable.